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1 August 1984

JAPAN REPORT

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POLITICAL AND SOCIOLOGICAL

SEPARATION OF PREMIERSHIP FROM LDP PRESIDENCY DISCUSSED

Tokyo SENTAKU in Japanese May 84 pp 48-50

[Unattributed article: "Emerging New Idea on 'Separation of the Premiership From the Presidency': Things That Will Come in the Wake of Nikaido's Vice Presidency"]

[Text] "Unless something unusual happens, I think it is better for Mr Nakasone to continue being Prime Minister. There is an 80 to 90 percent chance of Nakasone's being reelected," said Masumi Ezaki, acting chairman of the Tanaka faction group (the Thursday Club), without hesitation in his lecture to the Domestic and Foreign Affairs Investigation Committee on 19 April.

Apparently this came as a surprise to 50 percent of the audience, but to the other half it was what they had expected.

Prior to this, on 30 March, the former prime minister, Tanaka also made a speech of greeting to the Thursday Club, suggesting his "support for Nakasone." He did not clarify his position regarding Nakasone's reelection, but that was enough to put strong restraints on the intentions of factions outside the mainstream, proving that the "Tanakasone" structure was still alive and well.

In the intervening period, Nikaido had become LDP vice president.

It is said that Ezaki's statement was tacitly approved by Tanaka. Even though he is acting chairman, he could not have used the expression "80 to 90 percent" without knowing that Tanaka was not against it. It is probably safe to say that at this point there is tacit agreement between Tanaka and Ezaki about "the basic strategy of supporting Nakasone." "There are many things that we don't like about Nakasone. But if we keep eliminating other candidates one by one, Nakasone is the only one left"--this is how a Tanaka aide explained it.

However, what will they do if what Ezaki calls "something unusual" actually happens? The Komoto faction staff is still hoping for such an emergency, saying, "It was even said that Zenko Suzuki would not fail to be reelected, but he simply wasn't." Obviously there is a discrepancy between the hopes of groups outside the mainstream and objective reality, but if we begin to imagine cases of emergency, we could consider numerous possibilities.

Separation of Premiership From LDP Presidency Already in Effect

At present, a plan is being pursued by factions within and outside the mainstream. Its direct purpose is to come up with a compromise proposal in case Nakasone should not be reelected, but in the background there is an idea of restructuring the "conservative system, and it is deep rooted. It is also intertwined with concern over whether the reconstruction of the political circles should be promoted or should be stopped.

If we take some of these thought patterns and construct a hypothesis, the idea of separating the premiership from the LDP presidency seems to come to the fore.

The idea of separation between premiership and LDP presidency is both old and new. Many times, whenever competing factions have had almost equal powers and it has been difficult to select a prime minister, this method has been reconsidered.

During the process of the unification of the conservatives in 1955, Ichiro Hatoyama and Takatora Ogata fought against each other for the seat of LDP president. Neither the Liberal Party nor the Democratic Party would concede, and in the end the new party adopted the alternating presidency system. The presidency alternated among Hatoyama, Ogata, Takeyoshi Ogata and Tomomutsu Ono. Since Hatoyama was prime minister, there was an abnormal case of premier-presidency separation.

Later, toward the end of the Yoshida government, that same Hatoyama advocated the complete separation of the premiership and the LDP presidency and urged Yoshida to resign as LDP president.

A recent example occurred in the fall of 1982, when, during manipulations to decide who should succeed Suzuki, the plan of "Nakasone for prime minister" and "Fukuda for LDP president" was on the verge of being approved. But Nakasone was fiercely against it, so they had to plunge into the primary election. Prior to that stage, there was also talk of "Nakasone for prime minister" and "Komoto for LDP president."

If the separation between premiership and LDP presidency is to be pursued in the present situation, there are two possibilities to consider. One would be if Nakasone is reelected, and the other if he is defeated by a new administration.

As for the first case, the Tanaka faction sees Nakasone as prime minister and Nikaido as LDP vice president as a fait accompli and that all there is left to do is to clarify the division of responsibilities. Regarding the issue of Nikaido as vice president, Tanaka first proposed the idea last fall at his meeting with Nakasone, and some say that Nakasone is merely fulfilling the promise he made at the time. In order to recover from the damage done him by his trial, Tanaka tried to maintain his influence in the party by supporting Nikaido. Although Nikaido had once emphatically refused to accept the post of vice president, he later bitterly accused Nakasone of delaying his appointment. His attitude corresponds exactly to the words that Tanaka confided to his

aide. The separation between premiership and LDP presidency with Nikaido as vice president, in fact, was the plan conceived by Tanaka himself. With the reelection of Nakasone, Nikaido will remain vice president. Then, the separation between premiership and LDP presidency will actually be brought into effect. No unreasonable attempt such as trying to make Nikaido LDP president will be made.

However, should factions outside the mainstream not be satisfied and intra-party conflict occur, there is a chance that Komoto might become LDP president even if the same idea of separation between premiership and LDP presidency is to be sought. So, the question is "Is it the Tanaka faction or the nonmainstream factions that will reign in the LDP?" But the answer is obvious, if seen in terms of their powers.

The real problem would be in the second case; that is, should Nakasone not be reelected.

It is believed that the Tanaka faction and the Suzuki faction, which have strong conservative mainstream consciousness, and the Fukuda faction, which asserts that it is "the conservative proper" (former Prime Minister Fukuda's words), might plot large-scale negotiations. In this case, too, the idea of the premiership-LDP presidency separation is not excluded.

Should something happen, like the government being irrevocably bad or both mainstream groups, the Tanaka faction and the Suzuki faction, withdrawing their support, or the nonmainstream groups' attempting to establish a new party, and Nakasone's retreat becomes inevitable, the LDP will definitely move toward building a unified posture, for a while putting aside differences between mainstream and nonmainstream groups. The factions which would serve as the core of such a move would be those of Tanaka, Suzuki and Fukuda. Thus, a cooperative movement, like the concerted efforts that were made to "depose Miki" would be born within the party.

However, there is no right candidate for both for the premiership and the LDP presidency.

The Proposal, "Miyazawa for Prime Minister, Nikaido for President"

The Suzuki faction will of course support Kiichi Miyazawa, but with Miyazawa, who lacks experience in party operations, it will probably be difficult to get support from the entire party. The Fukuda faction will support Shintaro Abe, but it is still uncertain whether the Tanaka faction leans toward an Abe administration, and Fukuda is probably not too keen on that idea because he fears losing his position as faction leader. As for the Tanaka faction, it is impossible to support Takeshita, and, in view of unfavorable public opinion, Nikaido administration also seems impossible unless "something unusual" actually happens. The only other possibility is Toshio Komoto who is regarded as a tributary of the Takeo Miki group.

"If one thinks of the administration having the same person for both posts of prime minister and LDP president, one cannot think of a proper candidate. If

we think of the possibility of separating the premiership from the LDP presidency then there could be more variety of possibilities." A hypothesis to be drawn from such thinking is Miyazawa for prime minister, Nikaido for LDP president, and Abe for secretary general. This is a plan to construct the administration with each of the three mainstream factions of Tanaka, Suzuki and Fukuda giving a little, and to try to reconsolidate the conservative base.

The Suzuki faction wishes, if possible to gain real administrative power, using their traditional power of the Kochi-kai. But they would have to make one concession by letting go of the prime minister's seat. The Tanaka faction could get to be in charge of the party operation, but would have to make a concession by approving Miyazawa as LDP leader, a plan which Tanaka himself would not like to support. As for the Fukuda faction, even though they could materialize an Abe administration, they would have to be satisfied with being in the third position among the three factions. Furthermore, having an LDP president from the Tanaka faction would be the same as tacitly approving "Tanaka's rule," which is a concession to them, too.

It is said that there was a meeting between Tanaka and Suzuki in Tokyo recently. The content of their secret consultation was not disclosed, but it is not hard to imagine that the possibility of Nakasone's reelection, the possible future of "the Miyazawa administration" and the treatment of Nikaido must have been discussed. If Suzuki agrees upon the idea of Nikaido as LDP leader in order to have a Miyazawa administration, the idea of the new separation between premiership and LDP presidency can be supported by Tanaka and Suzuki, too.

Behind this plot, there are also other factors such as the evaluation of the coalition government with the New Liberal Club which is a factor for political reorganization, or the LDP's attitude toward the Democratic Socialist Party's attempt to be included in the coalition.

The political operation by LDP's coalition with the New Liberal Club produced some merits such as the passage of the budget draft without amendments, but the "anti-Tanaka" attitude of Togawa, minister of home affairs and Yohei Kono is still unchanged and the Tanaka faction still regards them with bitterness. Shin Kanemaru, the chairman of the Executive Council, and some others have expressed their displeasure explicitly. Since one cabinet member's post is given to the New Liberal Club, there is dissatisfaction among the Suzuki and Fukuda factions. Frankly speaking, the LDP must feel strongly about that it does not want outsiders peeking behind the scenes of its power.

They, especially the Tanaka faction, wish to recover from this state in the next general election and to regain the conservative one-party system. The senior staff of the Fukuda faction does not hesitate to say in public, "In order to do that, it is no good to let Nakasone try for another general election. So, the three-faction system is the only way..."

Regarding the move by the Democratic Socialist Party, there is a big difference between the conservative mainstream groups and Nakasone who says, "It would be possible to form a coalition between the LDP, the Clean Government Party, and

the Democratic Socialist Party," and favors cooperation between the conservative and the center parties. The reason that several times in the past Fukuda showed some interest in the idea of reorganizing the political circles was that he always wanted to oppose Tanaka, his old enemy, and originally he supported the idea of a unified party.

The intention of Tanaka's speech to the party at the end of March, "Not to Criticize Party Policies--The Hallmark of the True Conservative" is not only to restrain the Fukuda faction, but also to warn the party not to be easily taken in by invitations from the center groups, including the coalition with the New Liberal Club. Tanaka has, in his own way, absolute confidence in the orthodox conservative and in that sense he is not against the formation of the mainstream group.

Among the staff of medium standing in the Tanaka, Suzuki and Fukuda factions, too, the consciousness that "we must reconstruct the conservative mainstream by ourselves" is beginning to rise. There is no doubt that its focus is on the post-Nakasone situation. It means that there is a big chance that they will go along with separation of the premiership from the LDP presidency with one concession from each of the three factions.

However, there is a large obstacle in the way of this idea of separation. That is, if he approves it, it means it will be a part of Tanaka's strategy to regain power for himself.

According to his aide, Tanaka still believes in his innocence and has not given up hopes of returning to power after he is released from the Lockheed conviction. In short, he never withers.

If Tanaka does not wither, Fukuda also will keep the fire of revenge alive. It is said when Fukuda's resistance was at its peak over the issue of Nikaido's presidency, he made the following comment:

"The Suzuki faction made Miyazawa acting chairman, and our faction also opened the way for Abe as a successor. But look at what Tanaka is doing. He would not recognize Takeshita, and still tries to have a direct control over the faction. This is the bad thing about Tanaka's reign."

That means that if Tanaka does not step down, he will not, either. On Fukuda's part, even with separation of the premiership from the LDP presidency, he cannot approve of Nikaido as president. He is not entirely against supporting the Miyazawa administration, but if the reward for helping Tanaka get back on the road again is Abe as secretary general, his position as "pope" will be in danger.

The idea of Miyazawa, Nikaido and Abe as the trio made by concessions is redolent of a new era with old figures or power receding, but in fact the result might be that only Tanaka will survive. If this idea is being talked about in the meeting between Tanaka and Suzuki, here is what Tanaka must be thinking: "It is all right for Nakasone to be reelected this fall. This combination can be still be useful after Nakasone has been allowed to be prime minister for

another year or two." On the other hand, the three-faction system is too big a risk for Fukuda.

For Kakuei Tanaka's Amusement?

The new cooperation among the three conservative mainstream groups has a purpose of eliminating the opposition parties' manipulation for the reconstruction of political circles, but at the same time it can also stop the emergence of Komoto who is in the nonleading group. There is a possibility that Komoto may be able to enter the cabinet as deputy prime minister if Miyazawa becomes prime minister. But Komoto's falling behind Miyazawa, has, in effect, destroyed his chance of becoming prime minister or LDP president.

However, it is not that Komoto's chance of being entrusted with the premiership and the LDP presidency has been wiped out completely. He has a chance if Nakasone loses party support and retreats, and, in addition, the three factions' plan for the new administration is judged to be still premature. Should that happen, reverse strategy, such as soliciting cooperation from the opposition parties will probably be adopted.

When the appointment of Nikaido as vice president was carried out forcibly, Komoto waited for the scene in which Fukuda would resign from the post of supreme adviser. According to the staff of the Komoto group after Fukuda's resignation, Komoto was ready to resign immediately from the post of director general of the Economic Planning Agency. Masayuki Fukio, an aide to Fukuda, was to step down from the chairmanship of the Policy Affairs Research Council. If that had happened, Abe, who used to say that "it is not possible for one who is responsible for diplomacy to do such an absurd thing" would have been in a tricky position. However, Fukuda did not move. This was because he did not have enough confidence to overthrow Nakasone, and there was a great advantage in remaining in the minority even if the party was to be split.

Yet, Komoto might think about working out a drastic measure this fall. If the new cooperation among the mainstream groups is established, Komoto will lose his party base and be left out of the premiership-presidency separation framework.

The plan for the separation of the premiership from the LDP presidency may be, after all, nothing more than an "amusement" for Tanaka who aims to regain power. (No honorifics used.)

12545

CSO: 4105/219

POLITICAL AND SOCIOLOGICAL

ABE SAYS SANCTIONS AGAINST NORTH STILL IN FORCE

SK050212 Seoul YONHAP in English 0206 GMT 5 Jul 84

[Text] Tokyo, 5 Jul (YONHAP)--Japanese Foreign Minister Shintaro Abe said Wednesday that the series of sanctions his government took against North Korea after its terrorist bomb attack in Rangoon, Burma, last October are still in force.

In a press conference with South Korean correspondents two days before he leaves for Seoul for a four-day visit, Abe said the Japanese Government has maintained consistency in its policy toward North Korea.

Abe said the resumption of talks on fishery agreements between Japan and North Korea is now at stake, but the talks are being held on a private level in which his government cannot meddle.

In regard to the improvement of the legal status of Korean residents in Japan, he said it is natural to treat them just as Japanese nationals are treated.

He said he will direct experts to improve the fingerprinting system for alien registration cares. However, it is "difficult at the present moment" to abolish the fingerprinting system, he said.

In addition, Abe disclosed that his ministry has decided to write names of Koreans appearing in official documents in Chinese characters in parallel with descriptions of the names' Korean phonetics in the Japanese language.

Touching on the trade imbalance between Japan and South Korea, Abe said there are many areas in which Japan can work to correct the imbalance but Korea must make further efforts to find larger markets in Japan.

The transfer of Japan's advanced technology to South Korea should be carried out through the expansion of exchanges of technology between the two countries in the private sector, he said.

Abe added he would like to try to improve the technology transfer through the conclusion of a science and technology cooperation agreement.

Emphasizing that the 1988 Seoul Olympic Games are a matter of concern not only to South Korea but also to all of Asia and the world, Abe said the Japanese

Government will exert its utmost efforts to help make the event a success.

The Japanese Government will talk to the South Korean Government about providing cooperation, Abe said.

Noting that Japan and South Korea will celebrate the 20th anniversary of normalization of diplomatic relations next year, Abe said he hoped the two countries would maintain a mature partnership not only through political and economic exchanges but also through cultural, sports, and youth exchanges.

CSO: 4100/155

ECONOMIC

CHANGES IN LABOR FORCE, PRODUCTIVITY ANALYZED

Influence of Robots, Automation

Tokyo RODOSEISANSEI NO JITTAI in Japanese 1983 pp 18-30

[Text] Recently, the rapid spread of microelectronics applied industry--industrial robots, numerical control (NC) machine tools, machining centers, and NC presses --has attracted attention. In the 1981 survey, the manner of introduction, and the influence exerted on the labor force, of these devices was surveyed for eight industries: steel refining, steel rolling, steel and pig iron casting, electric wire/cable, lathes, bearings, electric motors and automobiles.

The definition of industrial robot, NC machine tool, machining center, and NC press are as follows:

Industrial robot*

- i. Manual manipulators: Manipulators operated by humans.**
- ii. Fixed- and variable-sequence robots: Manipulators which advance each stage of an operation, one after another, following sequences, conditions and positions programmed in advance; programmed information either cannot be easily changed (fixed) or can easily be changed (variable).
- iii. Playback robots: Sequence, position and other information concerning an operation is memorized in advance by the manipulator through human manipulation; operations are then carried out by recalling the instructions from memory when needed.

* Classification and definitions by the Japan Industrial Robot Association.

** A manipulator has functions similar to those of a human arm, and moves objects through space.

- iv. Numerical Control Robots: Manipulators which carry out required operations from information on sequence, position, etc., conveyed numerically (examples: punched tape, cards, digital switches, etc.).
- v. Intelligent Robots: Robots which can determine their activity through sensing and recognition functions.

NC Machine Tools

- i. NC Machine Tools: Machines for which commands for each manufacturing step are electronically sent by a very small computer. On the basis of these commands, processing is automatically carried out. The form and measurements for cutting, the speed of rotation of the tool or article, position when cutting and other necessary information is programmed in advance into an electronic control device. The machine can receive commands to move an article into position for processing, vary the position or speed of revolution of the tool, etc.
- ii. Machining Center: A type of NC machine tool. A large amount of processing can be carried out in one mounting of an article, and there is a device for automatically changing tools. Mountings and dismountings involving 10 times or more work than with previous systems are possible, and the number of mountings, dismountings, and applications of tools can be economized tens of times more. Also, the advantages of numerical control can be fully applied (no matter how great the number of determinations of position and steps involved, they are easily possible, etc.).
- iii. NC Press: A secondary metal-processing machine which carries out molding treatments of forming, bending, pressing and shearing, and in which control of operations is carried out by a numerical control device. There are NC machine presses and NC hydraulic presses.

I. Circumstances Surrounding Introduction of Industrial Robots

Among the establishments having industrial robots as of the end of December 1981, the automobile and electric motor industries had conspicuously high percentages, with the automobile industry at 75 percent and the electric motor industry at 63 percent (data for the automobile industry are from a survey of enterprises and represent percentage per enterprise; this also applies to data for the automobile industry which follow). Next were the lathe industry at 24 percent, steel rolling at 15 percent, and the bearing industry at 14 percent. The percentage of establishments having NC machine tools (including machining centers and NC presses) was 89 percent for the electric motor industry, followed by the automobile industry at 80 percent and the lathe industry at 72 percent, all particularly high. Next was the bearing industry, 40 percent, the steel rolling industry, 31 percent, and the steel

and pig iron casting industry, 11 percent. Since the use and functions of both industrial robots and NC machine tools were largely developed as a major object of the automobile, electric motor, and lathe industries, machine-related industries involving a large variety of operations, their spread has been concentrated in these industries, but despite the fact that their percentage is low in the materials-related industries of steel rolling, steel and pig iron casting, etc., introduction is being carried out (Tables 7, 8).

The total number of industrial robots in use for the 8 industries covered in the survey was 6,123. Most of these (78 percent) were in the automobile industry. Next was the electric motor industry (14 percent), followed by steel and pig iron casting (5 percent). Classification by type showed fixed- and variable-sequence robots accounting for a majority (57 percent); so-called top-class robots--playback and numerical control robots--were about 4/10 of the total (39 percent, of which 0.2 percent were intelligent robots). However, for the automobile industry, which maintains large numbers of robots, the percentage of playback and numerical control robots was relatively high (48 percent) (Table 7).

Elsewhere, the total number of NC machine tools in use was 2,966 (NC machine tools, 2,415; machining centers, 514; NC presses, 37). Of these, the automobile industry accounted for about half (53 percent); next was the steel and pig iron casting industry (17 percent), and the lathe industry (11 percent) (Table 8).

Further, concerning the average number of industrial robots and NC machine tools per establishment surveyed, for industrial robots the figures were 240 for the automobile industry and 92 for the electric motor industry, both particularly high. For the bearing industry, there were 1.3 units per establishment, and the steel rolling, steel and pig iron casting, and lathe industries each averaged 0.5 units per establishment. For NC machine tools, the automobile industry averaged 28 units per enterprise, the electric motor industry averaged 21 units per establishment, the lathe industry, 13 units and the bearing industry, 4.6 units.

[Tables 7 and 8, next pages]

Table 7. Numbers and Types of Industrial Robots in Use

産 業 (1)	産 業 用 ロ ボ ッ ト 保有事業所 割合 (%) (2)	(3) 保 有 台 数 (台)				1 事業所当たり 産業用ロボット 保有台数 (台) (8)
		産 業 用 ロ ボ ッ ト 計 (4)	マニユアル マニプレタ (5)	固定又は可 変シーケン スロボ (6)	プレイバック (7) 数値制御	
8 産 業 計 (9)	9	6,123 (100)	249 (4)	3,510 (57)	2,364 (39)	6.2
鉄 (10) 製 鍊	13	41 (100)	21 (51)	15 (37)	5 (12)	0.4
鉄 (11) 圧 延	15	46 (100)	9 (20)	24 (52)	13 (28)	0.5
鉄鋼・鉄鉄い物 (12)	4	320 (100)	6 (2)	286 (89)	28 (9)	0.5
電線・ケーブル (13)	8	23 (100)	0 (0)	23 (100)	0 (0)	0.3
旋 盤 (14)	24	13 (100)	2 (15)	5 (38)	6 (46)	0.5
軸 (15) 受	14	53 (100)	0 (0)	51 (96)	2 (4)	1.3
電 動 機 (16)	67	829 (100)	144 (17)	665 (80)	20 (2)	92
自 (17) 動 車	75	4,798 (100)	67 (1)	2,441 (51)	2,290 (48)	240

Key:

1. Industry
2. Percentage of establishments having industrial robots
3. Number of units
4. Total number of industrial robots
5. Manual manipulators
6. Fixed- and variable-sequence robots
7. Playback and numerical control
8. Average number of industrial robots per establishment
9. Total of eight industries
10. Steel forging
11. Steel rolling
12. Steel and pig iron casting
13. Electric wire/cable
14. Lathe
15. Bearing
16. Electric motor
17. Automobile

[see Notes, next page]

- Note: 1. Number in parentheses are percent; total number of industrial robots = 100 percent.
2. Fourteen intelligent robots are included in the figures for playback and numerical control robots.
3. Data on the automobile industry is from a survey of enterprises; data in column 2 is percentage of enterprises; data in column 7 is average number of industrial robots per enterprise.

Table 8. Number and Types of NC Machine Tools in Use

産 業 (1)	NC工作機 械等保有事 業所割合 (%) (2)	(3) 保 有 台 数 (台)				1事業所当たり NC工作機械等 保有台数 (台) (8)
		NC工作 機 械 等 計(4)	NC (5) 工 作 機 械	MC (6) 工 作 機 械	NC (7) プ レ ス	
8(9)産 業 計	17	2,966	2,415	514	37	3.0
鉄(10)製 錬	9	75	68	5	2	0.7
鉄(11)圧 延	31	106	104	2	0	1.2
鋳鋼(12)鉄鉄い物	11	499	393	87	19	0.8
電線(13)ケーブル	7	8	8	0	0	0.1
旋(14) 盤	72	335	178	157	0	13
軸(15) 受	40	195	189	6	0	4.6
電(16) 動 機	89	189	147	37	5	21
自(17) 動 車	80	1,559	1,328	220	11	78

Key:

1. Industry
2. Percentage of establishments having NC machine tools
3. Number of Units
4. Total number of NC machine tools
5. NC Machine tools
6. Machining centers
7. NC Presses
8. Average number of NC machine tools per establishment
9. Total of eight industries
10. Steel refining
11. Steel rolling
12. Steel and pig iron casting
13. Electric wire/cable
14. Lathe
15. Bearing
16. Electric motor
17. Automobile

II. Achievements in Introduction and Enlargement of Facilities for 1981 and Plans for Introduction and Enlargement of Facilities During 1982

Achievements in introduction and enlargement of facilities for industrial robots and NC machine tools for 1981, and plans for same in 1982 were compared. The percentage of establishments introducing or increasing the number of industrial robots was high for the automobile industry (50 percent) and for the electric motor industry (33 percent). The percentage of establishments planning to introduce industrial robots in the coming year was also conspicuously high for the automobile industry (80 percent) and for the electric motor industry (78 percent). It can be seen that the spread of industrial robots will be increasing further from now on (Chart 7).

The percentage of establishments introducing or increasing the number of NC machine tools during 1981 was high in the electric motor (67 percent), lathe (60 percent) and automobile (55 percent) industries. The percentage of establishments planning introduction of, or increase in the number of, industrial robots during 1982 was also about the same, respectively, and a continuing high desire for introduction can be seen in these industries. For the materials-related industries, the percentage of establishments introducing or planning to introduce industrial robots was low, but the number of establishments in the steel rolling industry having plans to introduce them was slightly higher than the number introducing them in 1981 (Chart 8).

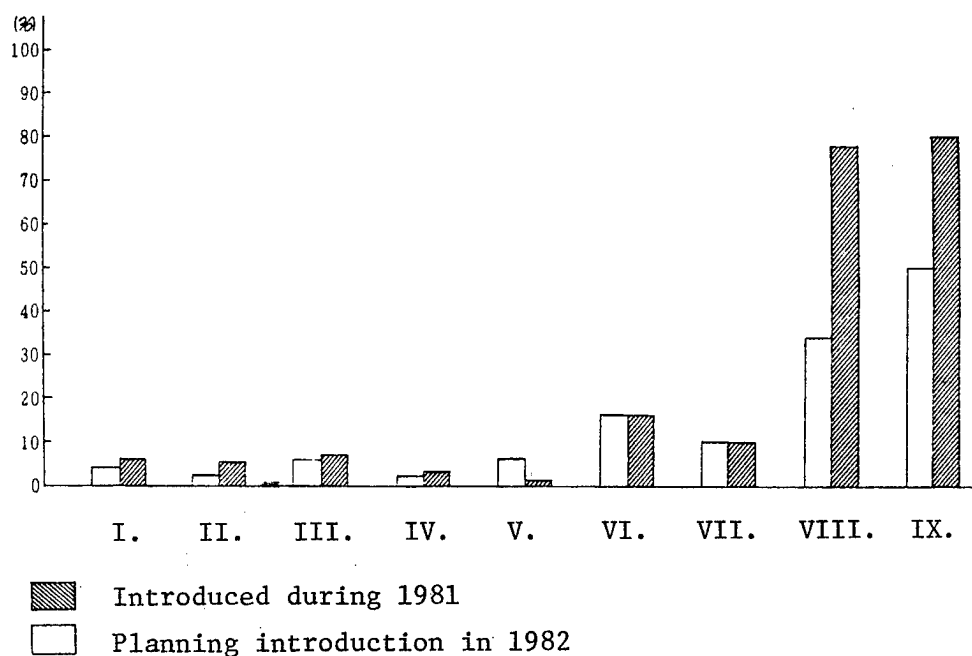
III. Original Goals of Introduction, Effects of Introduction and Goals of Introduction From Now On

The original goals of introduction, effects of introduction, and goals of introduction for the future (about 3 years), for establishments having industrial robots and NC machine tools as of the end of December 1981, are as follows:

1. With regard to the original goals of introducing industrial robots, the percentage of establishments mentioning "Reduction of Work Force" was highest (78 percent). Next were "Reduction of Product Cost" (56 percent), "Unmanned Operation Is Possible" (48 percent), and "Production Level Increase" (46 percent). In general, response to items dealing with energy or cost efficiency was high. However, response to the following items was in the 20-30 percent range: "Increase in Quality and Precision" (32 percent), "Solving the Lack of Skilled Workers" (26 percent), "Avoidance of Work-Related Illnesses" (30 percent), and "Accident Prevention" (23 percent). The variety of desired goals was quite large.

Elsewhere, with regard to effects of introduction, response was somewhat lower than for original introduction goals, but for the most part, the expected results from introduction were obtained. Among these, the effect after introduction was slightly higher than the original goal for the items "Reduction of Product Cost," "Increase in Quality and Precision," "Avoidance of Work-Related Illnesses," and "Prevention of Accidents."

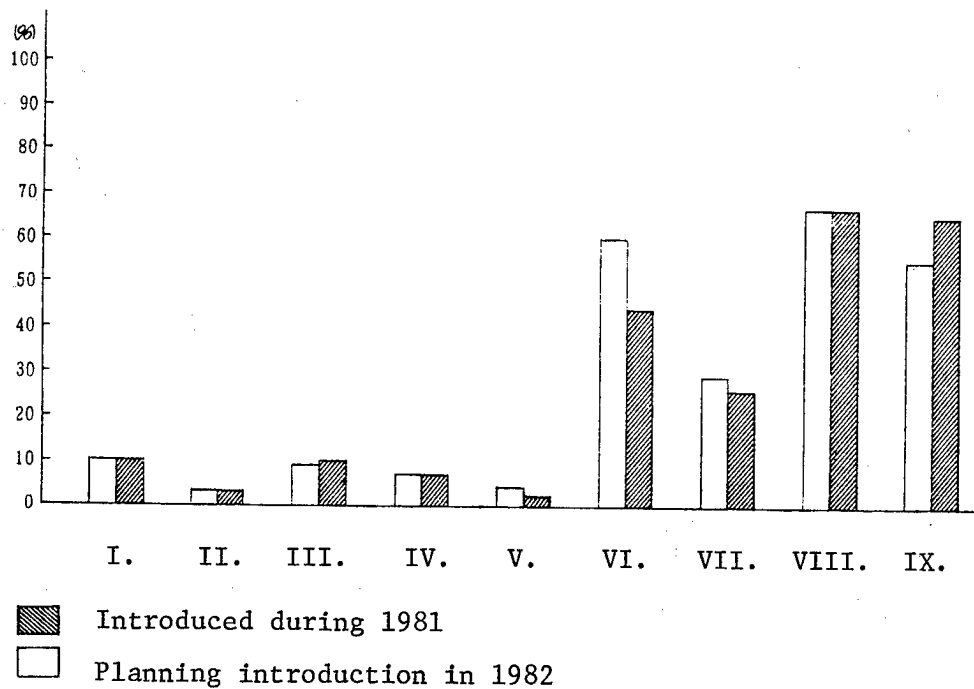
Chart 7. Percentage of Establishments Introducing Industrial Robots During 1981, and Percentage Planning Introduction During 1982



Key:

- I. Total of eight industries
- II. Steel forging
- III. Steel rolling
- IV. Steel and pig iron casting
- V. Electric wire/cable
- VI. Lathe
- VII. Bearing
- VIII. Electric motor
- IX. Automobile

Chart 8. Percentage of Establishments Introducing NC Machine Tools During 1981, and Percentage Planning Introduction During 1982



Key:

- I. Total of eight industries
- II. Steel forging
- III. Steel rolling
- IV. Steel and pig iron casting
- V. Electric wire/cable
- VI. Lathe
- VII. Bearing
- VIII. Electric motor
- IX. Automobile

Looking at the results by industry, the percentage of responses was highest for all industries for "Reduction of Work Force." For the automobile industry, which maintains a large number of industrial robots, response was high to the items "Increase in Quality and Precision," "Solving the Lack of Skilled Workers," "Avoidance of Work-Related Illnesses," and "Accident Prevention," as goals of introduction of industrial robots. On the other side of the coin, response to the item "Production Level Increase" was low; compared to other industries, the automobile industry maintains a higher percentage of playback and other top-class robots, and compared to other industries, the functions expected of industrial robots are more advanced. For the steel and pig iron casting industry, the relatively high percentage was distinctive for the items "Avoidance of Work-Related Illnesses" and, for the electric wire/cable industry, the items "Unmanned Operation is Possible" and "Operation for Long Hours is Possible." Both industries had a high percentage response to these items.

Concerning future introduction goals, the number of items receiving responses was fewer than for those concerning the original introduction goals, and the goals are more limited, but, response relating to such energy- and cost-efficient items as "Reduction of Work Force" was high. Even so, the needs of industries have somewhat increased concerning the items "Solving the Lack of Skilled Workers" and "Possibility of Varied Products and Complicated Processes" (Chart 9).

2. Concerning original goals of introduction of NC machine tools, the highest percentage response was for "Increase in Quality and Precision (79 percent). Next was "Possibility of Varied Products and Processes" (63 percent), "Reduction of Product Cost" (56 percent), "Production Level Increase (50 percent), "Reduction of Work Force (46 percent), and "Unmanned Operations Are Possible" (39 percent).

Compared to responses concerning industrial robots, percentage of response to items relating to energy and cost efficiency was low. However, response was high to the items "Increase in Quality and Precision" (79 percent) and "Possibility of Varied Products and Processes" (63 percent). Also, response was low to "Avoidance of Work-Related Illnesses (5 percent) and "Accident Prevention (5 percent), but response was fairly high to "Solving the Lack of Skilled Workers" (30 percent). This indicates the difference in need for functions of NC machine tools as compared with industrial robots.

Concerning the effects of introduction, percentages were somewhat lower than for the original goals of introduction, just as in the case of industrial robots. However, the expected goals were, for the most part, fulfilled, and for the items "Solving the Lack of Skilled Workers" and "Operation for Long Hours is Possible," responses indicate an effect greater than the original goal.

Looking at the results by industry, for the most part for all industries, response was high to the items "Increase in Quality and Precision" and "Possibility of Varied Products and Processes." However, particularly in the automobile industry, "Solving the Lack of Skilled Workers," and in the

electric wire/cable and lathe industries, "Unmanned Operation is Possible" and "Operation for Long Hours is Possible," response was relatively high (Chart 10).

IV. Change in the Size of the Work Force in Response to the Process of Introduction

1. Increase or decrease in the size of the work force at establishments introducing industrial robots or NC machine tools was investigated. For industrial robots, the percentage of establishments responding that their work force "Decreased" reached about 70 percent, while "No Increase or Decrease" accounted for about 30 percent of the responses. The percentage for "Increased" was zero. For NC machine tools, establishments responding "Decreased" with respect to the size of their work force were about 30 percent, "No Increase or Decrease" accounted for a majority of about 60 percent, and "Increased" accounted for about 10 percent. Further, for both industrial robots and NC machine tools, the personnel who were eliminated were largely absorbed by other fields or manufacturing processes (Chart 11, Table 11, Table 12).

2. With regard to posting of new personnel along with the introduction of industrial robots or NC machine tools, the percentage of establishments responding to "Posted New Personnel" was just under about 30 percent for those establishments introducing industrial robots, and just over 30 percent for those introducing NC machine tools. At the majority of establishments, personnel already posted are engaged in the operation of industrial robots and NC machine tools.

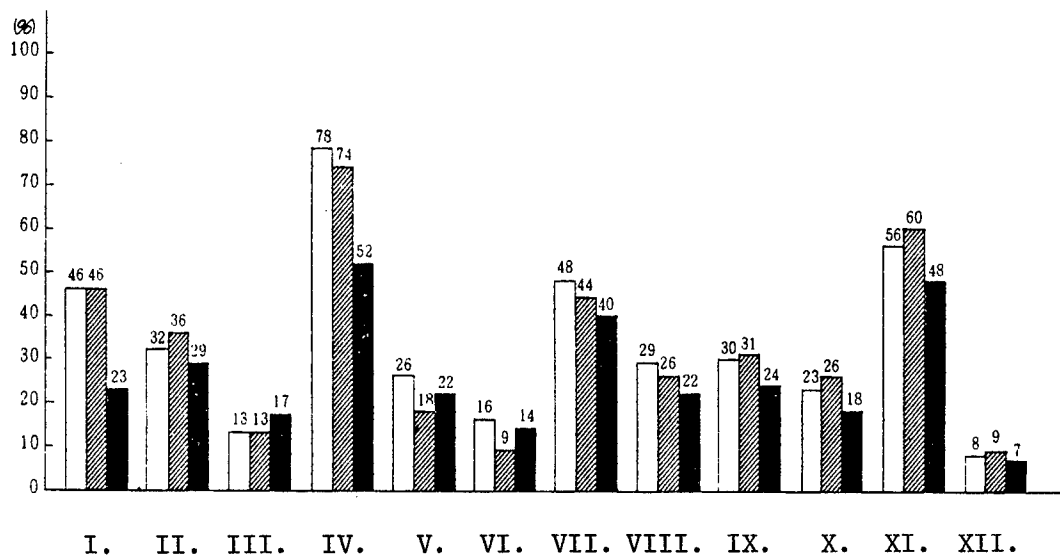
Further, looking at the classification of newly posted personnel, for industrial robots, about 40 percent of new personnel were newly graduated from high school, while about 60 percent were transferred from other manufacturing processes or fields. For NC machine tools, the percentage of new graduates was low at about 20 percent, while workers transferred from other fields or manufacturing processes were about 60 percent (Chart 12).

V. Incidence of Problems Accompanying Introduction

The incidence of problems at establishments having industrial robots and NC machine tools was divided into the categories "Problems accompanying introduction with workers transferred to other fields or manufacturing processes" and "Problems with workers newly transferred in along with introduced manufacturing processes." Establishments having problems in one or another of these categories were at about 80 percent for industrial robots and at about 90 percent for NC machine tools.

Establishments responding to the item "Problems With Workers Transferred to Other Fields or Manufacturing Processes" were at about 70 percent for both those having industrial robots and for those with NC machine tools. In contrast, response to the item "Problems With Workers Newly Transferred In," compared to about 60 percent for industrial robots, was about 80 percent for NC machine tools (Figure 13).

Chart 9. Original Goals of Introduction of Industrial Robots, Effects of Introduction and Future Goals of Introduction, By Percentage of Establishments (Total = 100)

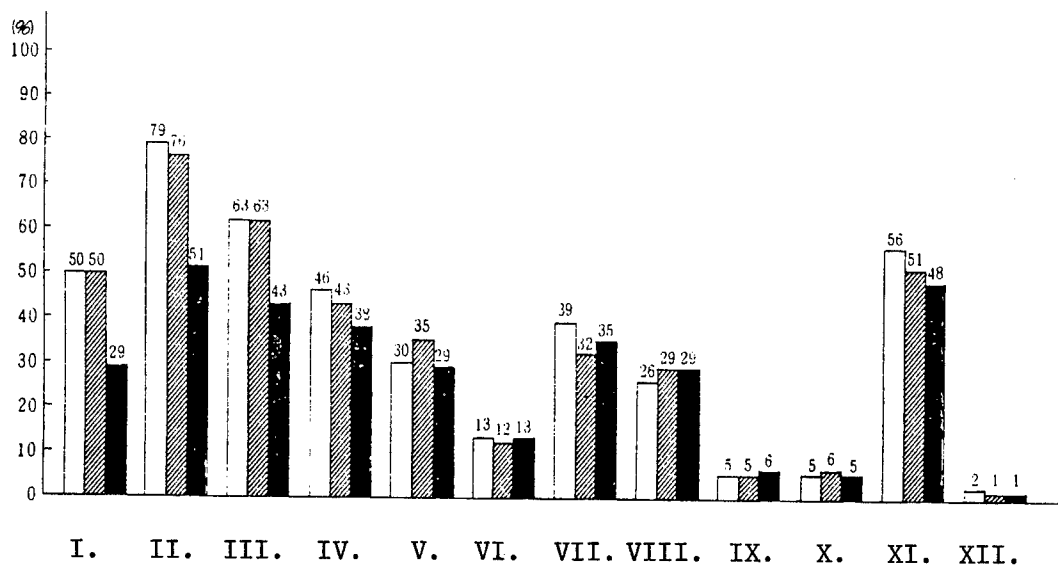


□ Original Goals of Introduction
 ▨ Effects of Introduction
 ■ Future Goals of Introduction

Key:

- I. Production Level Increase
- II. Increase in Quality and Precision
- III. Possibility of Varied Products and Complicated Processes
- IV. Reduction of Work Force
- V. Solving the Lack of Skilled Workers
- VI. Reduction of Overtime
- VII. Unmanned Operations Are Possible
- VIII. Operation for Long Hours is Possible
- IX. Avoidance of Work-Related Illnesses
- X. Accident Prevention
- XI. Reduction of Product Cost
- XII. Other

Chart 10. Original Goals of Introduction of NC Machine Tools, Effects of Introduction and Future Goals of Introduction, By Percentage of Establishments (Total = 100)



□ Original Goals of Introduction
 ▨ Effects of Introduction
 ■ Future Goals of Introduction

Key:

- I. Production Level Increase
- II. Increase in Quality and Precision
- III. Possibility of Varied Products and Complicated Processes
- IV. Reduction of Work Force
- V. Solving the Lack of Skilled Workers
- VI. Reduction of Overtime
- VII. Unmanned Operations Are Possible
- VIII. Operation for Long Hours is Possible
- IX. Avoidance of Work-Related Illnesses
- X. Accident Prevention
- XI. Reduction of Product Cost
- XII. Other

Table 9. Original Goals of Introduction of Industrial Robots, Effects of Introduction and Future Goals of Introduction, By Percentage of Establishments in Each of Eight Industries (Total Establishments = 100)

		Category																																			
		I.			II.			III.			IV.			V.			VI.			VII.			VIII.			IX.			X.			XI.			XII.		
Industry		a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c
A		46	46	23	32	36	29	13	13	17	78	74	52	26	18	22	16	9	14	48	44	40	29	26	22	30	31	24	23	26	18	56	60	48	8	9	7
B		54	53	8	23	31	0	0	0	0	62	62	15	0	0	0	23	8	8	31	23	0	23	23	8	8	8	8	23	23	8	23	38	23	8	8	0
C		64	64	23	36	36	8	7	7	0	79	57	31	21	29	0	7	0	15	43	29	8	29	29	8	21	29	8	21	29	8	43	50	23	7	7	0
D		33	33	4	29	25	21	8	4	8	88	88	58	33	8	17	4	4	4	42	38	38	17	13	13	50	42	29	21	21	13	67	67	46	4	4	4
E		17	17	33	0	0	17	0	0	0	67	67	50	0	0	0	0	0	0	50	50	50	17	17	17	0	0	0	0	0	0	50	50	33	0	17	17
F		67	67	33	17	33	33	17	17	17	67	50	67	17	17	33	50	33	50	50	50	50	50	33	50	17	33	33	17	33	33	50	50	50	17	17	17
G		50	50	67	0	17	0	0	0	17	83	100	50	17	17	33	33	17	17	50	67	67	33	17	33	0	0	0	17	17	17	50	50	83	0	0	0
H		50	33	33	17	17	50	33	33	33	67	67	67	17	17	33	33	17	17	83	83	83	67	67	50	33	33	33	0	0	0	100	100	100	0	0	0
I		33	40	33	73	80	87	33	40	60	73	67	73	60	47	60	13	13	20	53	47	67	27	33	33	47	53	53	47	53	53	60	60	60	20	20	20

[Key on following page]

Key for Tables 9 and 10:

Category

- I. Production Level Increase
- II. Increase in Quality and Precision
- III. Possibility of Varied Products and Complicated Processes
- IV. Reduction of Work Force
- V. Solving the Lack of Skilled Workers
- VI. Reduction of Overtime
- VII. Unmanned Operations Are Possible
- VIII. Operation for Long Hours is Possible
- IX. Avoidance of Work-Related Illnesses
- X. Accident Prevention
- XI. Reduction of Product Cost
- XII. Other
 - a. Original Goals of Introduction
 - b. Effects of Introduction
 - c. Future Goals of Introduction

Industry

- A. Total of Eight Industries
- B. Steel Refining
- C. Steel Rolling
- D. Steel and Pig Iron Casting
- E. Electric Wire/Cable
- F. Lathe
- G. Bearing
- H. Electric Motor
- I. Automobile

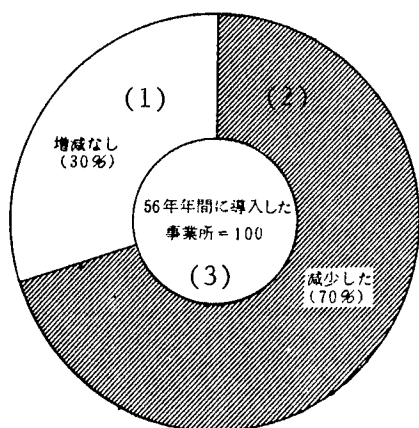
Table 10. Original Goals of Introduction of NC Machine Tools, Effects of Introduction and Future Goals of Introduction (Total Establishments = 100)

Category

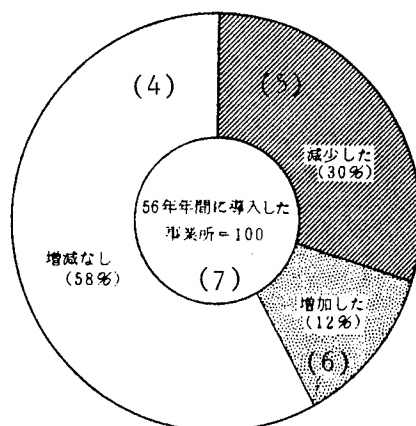
Industry	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c						
A	50	50	29	79	76	51	63	63	43	46	43	38	30	35	29	13	12	13	39	32	35	26	29	29	5	5	6	5	6	5	56	51	48	2	1	1
B	89	89	22	89	89	22	44	44	22	56	44	11	11	22	0	0	0	0	22	22	33	22	22	11	0	0	0	0	0	0	33	33	33	0	0	0
C	44	48	11	78	70	26	41	44	19	56	56	30	22	26	11	4	4	7	41	33	26	7	15	15	0	4	7	7	15	41	37	37	15	0	0	0
D	45	46	37	85	79	63	69	66	51	43	39	40	25	28	30	18	16	15	31	27	27	24	25	25	10	10	10	3	3	2	60	51	58	0	0	0
E	20	20	40	80	80	60	80	80	60	40	40	60	20	40	60	0	0	0	40	40	60	20	40	20	0	0	0	0	0	0	60	40	60	0	0	0
F	72	67	28	67	72	50	61	61	44	50	44	44	44	44	39	28	28	28	56	56	44	67	61	56	0	0	0	6	6	11	56	50	44	6	—	—
G	53	47	12	65	59	24	59	59	24	29	29	18	29	29	12	12	6	6	35	24	24	18	24	24	—	—	—	—	—	—	51	53	29	—	—	—
H	25	25	25	63	63	63	88	88	63	63	50	50	38	50	63	13	13	13	75	75	75	38	38	50	—	—	—	3	13	13	88	75	75	—	—	—
I	50	50	44	88	94	81	81	81	69	38	50	56	56	69	56	6	6	13	44	44	56	31	38	50	6	6	6	13	13	13	63	75	75	13	13	13

[Key on preceding page]

Chart 11. Changes in the Number of Workers Due to Introduction of New Manufacturing Processes



Industrial Robots



NC Machine Tools

Key:

1. No increase or decrease (30 percent)
2. Decrease (70 percent)
3. Business establishments introducing industrial robots during 1981 = 100
4. No increase or decrease (58 percent)
5. Decrease (30 percent)
6. Increase (12 percent)
7. Business establishments introducing NC machine tools during 1981 = 100

Table 11. Changes in Labor Force Due to New Manufacturing Processes
Accompanying the Introduction of Industrial Robots

(1) 産 業	56年年間 導(2)入 事業所数	増 加 (3) 事業所数	減 少 (4) 事業所数	(5) 減少事業所の対策別事業所数			増減なし 事業所数 (9)
				他工程、 他部門へ 配(6)転	関連会社 へ 出 向 (7)の 他	雇用調整 (8)	
(10) 8 産 業 計	43 (100)	0 (0)	30 (70)	29 (97)	4 (13)	0 (0)	13 (30)
(11) 鉄 製 錬	2 (100)	0 (0)	2 (100)	2 (100)	0 (0)	0 (0)	0 (0)
(12) 鉄 圧 延	5 (100)	0 (0)	3 (60)	3 (100)	2 (0)	0 (0)	2 (40)
(13) 鋳鋼・鉄鉄い物	12 (100)	0 (0)	11 (92)	11 (100)	0 (0)	0 (0)	1 (8)
(14) 電線・ケーブル	3 (100)	0 (0)	1 (33)	1 (100)	0 (0)	0 (0)	2 (67)
(15) 旋 盤	4 (100)	0 (0)	1 (25)	1 (100)	0 (0)	0 (0)	3 (75)
(16) 軸 受	4 (100)	0 (0)	3 (75)	3 (100)	0 (0)	0 (0)	1 (25)
(17) 電 動 機	3 (100)	0 (0)	1 (33)	1 (100)	1 (100)	0 (0)	2 (67)
(18) 自 動 車	10 (100)	0 (0)	8 (80)	7 (88)	3 (38)	0 (0)	2 (20)

Table 12. Changes in Labor Force Due to New Manufacturing Processes
Accompanying Introduction of NC Machine Tools

(1) 産 業	56年年間 導(2)入 事業所数	増 加 (3) 事業所数	減 少 (4) 事業所数	(5) 減少事業所の対策別事業所数			増減なし 事業所数 (9)
				他工程、 他部門へ 配(6)転	関連会社 へ 出 向 (7)の 他	雇用調整 (8)	
(10) 8 産 業 計	113 (100)	14 (12)	34 (30)	33 (97)	4 (12)	0 (0)	65 (58)
(11) 鉄 製 錬	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (100)
(12) 鉄 圧 延	8 (100)	1 (13)	3 (38)	2 (67)	1 (33)	0 (0)	4 (50)
(13) 鋳鋼・鉄鉄い物	53 (100)	3 (6)	15 (28)	15 (100)	0 (0)	0 (0)	35 (66)
(14) 電線・ケーブル	3 (100)	1 (33)	1 (33)	1 (100)	0 (0)	0 (0)	1 (33)
(15) 旋 盤	15 (100)	3 (20)	1 (7)	1 (100)	0 (0)	0 (0)	11 (73)
(16) 軸 受	12 (100)	3 (25)	3 (25)	3 (100)	0 (0)	0 (0)	6 (50)
(17) 電 動 機	6 (100)	0 (0)	5 (83)	5 (100)	1 (20)	0 (0)	1 (17)
(18) 自 動 車	11 (100)	3 (27)	6 (55)	6 (100)	2 (33)	0 (0)	2 (18)

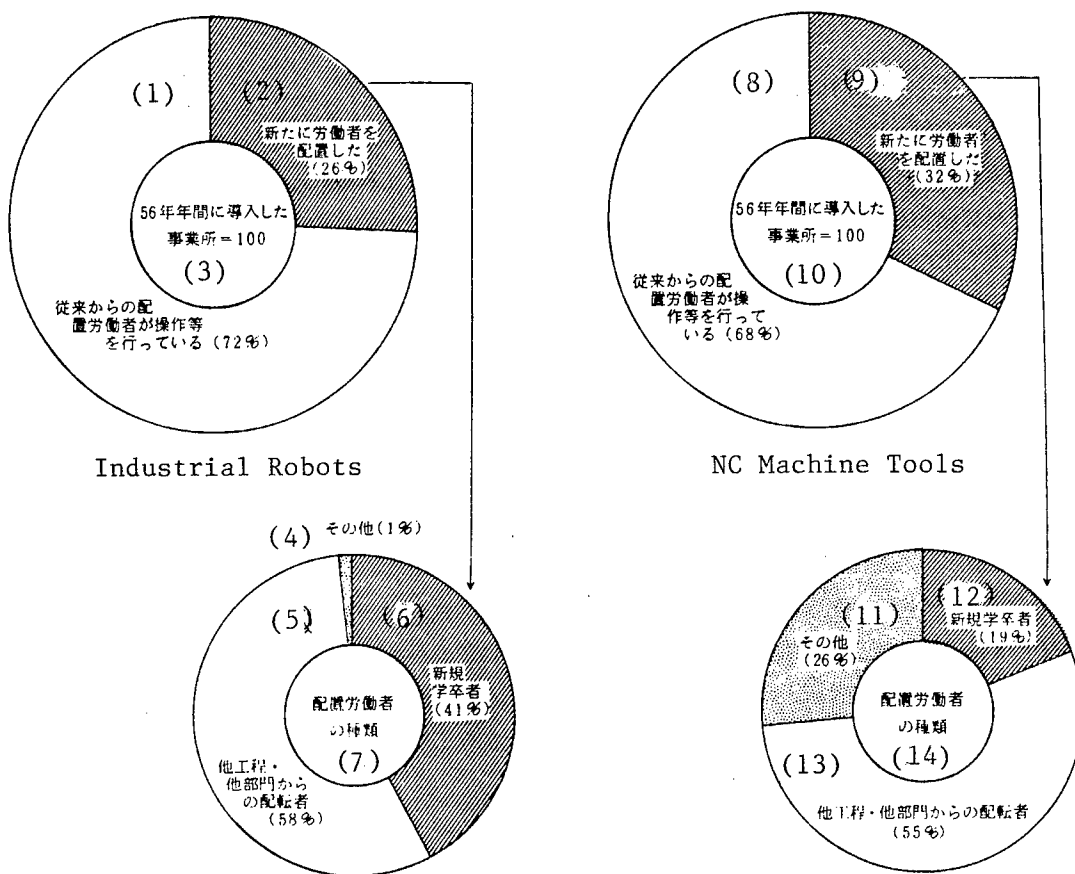
[Key to both Tables on following page]

Key for Tables 11 and 12:

1. Industry
2. Number of business establishments introducing industrial robots/
NC machine tools
3. Number of business establishments increasing their workforce
4. Number of business establishments reducing their workforce
5. Number of business establishments reducing their workforce,
by measure employed
6. Transfers to other manufacturing processes/fields
7. Transfers to related companies, others
8. Hiring adjustments
9. Number of business establishments with no increase or reduction
in workforce
10. Total of 8 industries
11. Steel refining
12. Steel rolling
13. Cast steel/pig iron
14. Electric wire/cable
15. Lathes
16. Bearings
17. Electric appliances
18. Automobiles

Note: Numbers in () are percent (number of business establishments introducing industrial robots/NC machine tools during 1981 = 100). Under "Number of business establishments reducing their workforce, by measure employed," numbers in parentheses are percentage of business establishments reducing their workforce.

Chart 12. Newly Posted Workers Accompanying the Introduction of Industrial Robots and NC Machine Tools



Key:

1. Operations carried out by previously posted personnel (72 percent)
2. Operations carried out by newly posted personnel (26 percent)
3. Business establishments introducing industrial robots during 1981 = 100
4. Other (1 percent)
5. Workers posted from other manufacturing processes or fields (58 percent)
6. Workers newly graduated from school (41 percent)
7. Type of worker posted
8. Operations carried out by previously posted personnel (68 percent)
9. Operations carried out by newly posted personnel (32 percent)
10. Business establishments introducing NC machine tools during 1981 = 100
11. Other (26 percent)
12. Workers newly graduated from school (19 percent)
13. Workers posted from other manufacturing processes or fields (55 percent)
14. Type of worker posted

Note: Other includes workers transferred from other establishments, workers hired after the normal hiring season, etc.

Table 13. Incidence of Problems Accompanying Introduction of New Industries as well as Industrial Robots, and Breakdown by Content (Total = 100)

産 業 (1)	問 題 の 有 無 (2)		従来からの工程作業者の他部門、 他工程への配置転換に係る (5)				導入に伴いその工程におい て新たに配置した作業者の (10)			
	有 (3)	無 (4)	再教育 訓練 問題 (6)	処 遇 問題 (7)	その他 (8)	問 題 (9) な し	採 用 (11) 問 題	教育訓 練問題 (12)	その他 (13)	問 題 (14) な し
(15) 8 産 業 計	82	18	55	18	5	30	5	59	3	38
(16) 鉄 製 鍊	85	15	62	8	0	15	15	38	0	38
(17) 鉄 圧 延	92	8	85	15	0	15	15	63	0	31
(18) 鋳鋼・鉄鉄い物	88	13	46	33	0	21	0	58	4	38
(19) 電線・ケーブル	83	17	33	17	17	33	0	33	17	50
(20) 旋 盤	33	67	0	0	17	83	0	17	0	83
(21) 軸 受	67	33	50	0	17	33	0	33	0	67
(22) 電 動 機	83	17	83	33	17	17	0	83	0	17
(23) 自 動 車	87	13	53	13	0	47	0	87	7	13

Table 14. Incidence of Problems Accompanying Introduction of New Industries as well as NC Machine Tools, and Breakdown by Content (Total = 100)

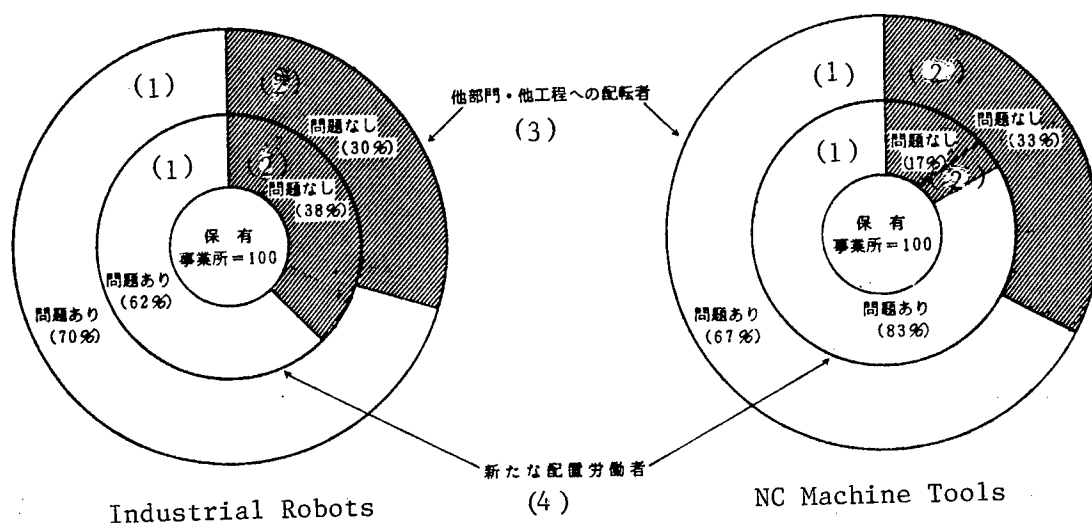
産 業 (1)	問 題 の 有 無 (2)		従来からの工程作業者の他部門、 他工程への配置転換に係る (5)				導入に伴いその工程におい て新たに配置した作業者の (10)			
	有 (3)	無 (4)	再教育 訓練 問題 (6)	処 遇 問題 (7)	その他 (8)	問 題 (9) な し	採 用 (11) 問 題	教育訓 練問題 (12)	その他 (13)	問 題 (14) な し
(15) 8 産 業 計	91	9	61	8	4	33	13	80	10	17
(16) 鉄 製 鍊	89	11	44	11	0	44	11	89	0	11
(17) 鉄 圧 延	89	11	67	11	0	30	4	63	0	33
(18) 鋳鋼・鉄鉄い物	99	1	61	10	5	31	25	96	22	2
(19) 電線・ケーブル	100	0	40	0	0	60	0	100	0	0
(20) 旋 盤	83	17	67	6	0	33	11	61	0	39
(21) 軸 受	71	29	47	0	18	35	0	47	6	41
(22) 電 動 機	100	0	88	13	0	13	0	88	0	13
(23) 自 動 車	87	13	56	6	0	44	6	88	6	13

[Key to both Tables on following page]

Key for Tables 13 and 14:

1. Industry
2. Incidence of problems
3. Present
4. Absent
5. Problems related to transfer of workers in former manufacturing processes to other fields or processes
6. Retraining problems
7. Treatment problems
8. Other
9. No problems
10. Problems relating to new workers posted to manufacturing processes accompanying introduction of industrial robots/NC machine tools
11. Hiring problems
12. Training problems
13. Other
14. No problems
15. Total of 8 industries
16. Steel refining
17. Steel rolling
18. Cast steel/pig iron
19. Electric wire/cable
20. Lathes
21. Bearings
22. Electric appliances
23. Automobiles

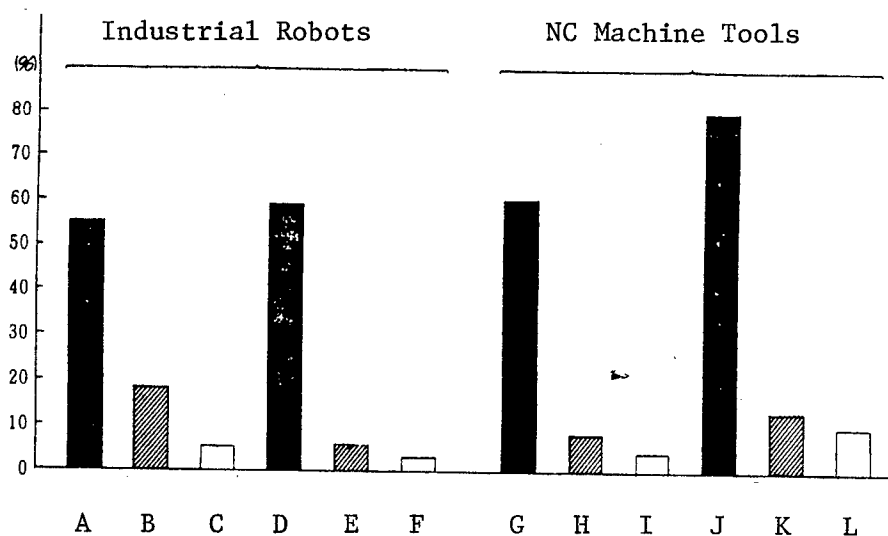
Figure 13. Percentage of Establishments With Problems Stemming from Introduction of Industrial Robots and NC Machine Tools, By Circumstances of Occurrence (Total Establishments = 100)



Key:

1. Problems Present
2. No Problems
3. Workers Transferred to Other Fields and Manufacturing Processes
4. Workers Newly Transferred In

Figure 14. Types of Problems (Total Establishments = 100)



Key:

Workers Transferred to Other Fields and Manufacturing Processes

A. Reeducation/Training Problems

B. Treatment Problems

C. Other

Workers Newly Transferred In

D. Education/Training Problems

E. Hiring Problems

F. Other

Workers Transferred to Other Fields and Manufacturing Processes

G. Reeducation/Training Problems

H. Treatment Problems

I. Other

Workers Newly Transferred In

J. Education/Training Problems

K. Hiring Problems

L. Other

Looking at the types of problems encountered, responses for both industrial robots and NC machine tools reached 50 percent for reeducation and training, both with regard to "Problems With Workers Transferred to Other Fields or Manufacturing Processes" and "Problems With Workers Newly Transferred In." In particular, establishments having NC machine tools gave a high response of about 80 percent to the item "Problems With Workers Newly Transferred In." It can be seen that the establishments consider education and training to be of concern. Further, concerning problems of worker treatment, there was a higher response to the item "Problems With Workers Transferred to Other Fields/Manufacturing Processes" for industrial robots, about 20 percent, than for NC machine tools, about 10 percent. With regard to hiring problems, the percentage response for NC machine tools was slightly higher at 10 percent for the items "Problems With Workers Newly Transferred In" than that for industrial robots (Tables 13 and 14, Figures 13 and 14).

Labor Productivity

Tokyo RODOSEISANSEI NO JITTAI in Japanese 1983 pp 41-49

[Text] I. Steel (steel refining, steel rolling, steel and pig-iron casting)

In the steel industry, steel refining, steel rolling, and steel and pig iron casting saw a general decline in production due to the continuing decline in plant and construction investment, and the decline in personal consumption and domestic demand resulting from the long-drawn-out economic stagnation. In the meantime, labor commitment increased slightly in steel refining, decreased slightly in steel rolling, and in steel and pig iron casting, saw a decline exceeding that in production levels. Because of this, labor productivity showed a continuing drop from 1980 in steel refining and steel rolling, while a slight increase was maintained in steel and pig iron casting.

1. In steel refining, pig iron production (blast furnace steel) dropped below a 70 percent operation level, in addition to a drop in production capacity (overall nominal capacity), and because of this deepening slump, production dropped 5.7 percent. Meanwhile, since labor moved slightly downward, labor productivity fell 3.6 percent. In steel production (coarse ore into converter and electric furnaces), production capacity (overall nominal capacity) dropped for both converter and electric furnaces. However, electric furnaces recovered somewhat at the end of the year, and the increased operation level resulted in a gain in production level for electric furnaces, and a drop for converters. At the same time, labor commitment showed movement in the opposite direction, increasing slightly for converters and decreasing somewhat for electric furnaces. Because of this, labor productivity dropped for converters, and increased for electric furnaces. For steel refining as a whole, labor productivity dropped 3.3 percent, mainly from the drop in production levels. Examining change in labor productivity by process, for blast furnace steel, prefurnace processes required 0.081 hours, a 9.5 percent drop. This led to an 8.2 percent decline in labor productivity for direct processes. For coke and sintered ore, the source of pig iron, labor productivity for coke rose

2.9 percent, at 0.536 hours, while sintered ore moved in the opposite direction with a drop of 5.7 percent, at 0.185 hours (Table 27).

Table 27. Required Labor Time and Percentage Rise in Labor Productivity for 1 Ton Pig Iron, By Product and Process

<u>Product/Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Blast Furnace Steel	0.365	0.378	2.7	△ 3.6
Direct Processes, Total	0.110	0.119	△ 1.9	△ 8.2
Pre-Furnace	0.074	0.081	△ 1.4	△ 9.5
Other	0.036	0.038	△ 2.9	△ 5.6
Indirect Processes, Total	0.255	0.259	4.1	△ 1.6
Coke	0.552	0.536	5.3	2.9
Direct Processes, Total	0.242	0.226	△ 0.4	6.6
Indirect Processes, Total	0.310	0.310	9.4	0.0
Sintered Ore	0.175	0.185	2.8	△ 5.7
Direct Processes, Total	0.026	0.028	△ 8.3	△ 7.7
Indirect Processes, Total	0.149	0.157	4.5	△ 5.4

In steel manufacture, the ingot process (0.095 hours) continued its rise from the previous year. The continuous casting process dropped 2.9 percent (0.097 hours), the melting process dropped 9.7 percent (0.068 hours). Due to a drop in most of the key processes, the total for direct processes dropped 2.9 percent, and indirect processes also dropped 3.2 percent.

Electric furnaces moved in the opposite direction from that for converters, with the melting process rising 3.1 percent (0.251 hours), and continuous casting up 7.8 percent (0.200 hours). All other processes were up as well, resulting in a rise for direct processes of 4.7 percent, and of 5 percent for indirect processes (Table 28).

The number of personnel in the steel refining process as a whole dropped 7.7 percent, in contrast with a slight increase in labor commitment. In pig iron production, the percentage of establishments implementing the measure for increasing labor productivity, decided upon last year, of "Introduction and Addition of New and Advanced Machines and Facilities," has dropped by half. However, in steel manufacturing, the percentage is rising (e.g., enlargement of facilities for continuous casting). Also, in pig iron and steel manufacturing, the percentage of establishments adopting the measure "Concentration of Production in High-Efficiency

Facilities" (e.g., discontinuance of medium- and smaller-size furnaces, and priority production in large furnaces) is rising, as well as the percentage for "Improvement of Product Quality and Control."

Table 28. Required Labor Time and Percentage Rise in Labor Productivity for 1 Ton Converter Steel, By Process

<u>Product/Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Converter Steel	0.755	0.778	△ 8.9	△ 3.0
Direct Processes, Total	0.344	0.354	△ 7.5	△ 2.9
Melting	0.062	0.068	△ 12.7	△ 9.7
Ingot Forming	0.103	0.095	7.8	7.8
Continuous Casting	0.089	0.097	△ 1.3	△ 9.0
Crane	0.061	0.063	△ 7.0	△ 3.3
Accumulating Mixer	0.008	0.010	20.0	△ 25.0
Other	0.021	0.021	△ 5.0	0.0
Indirect Processes, Total	0.411	0.424	△ 10.2	△ 3.2
Electric Furnace Steel	1.407	1.340	△ 7.2	4.8
Direct Processes, Total	0.923	0.880	△ 5.1	4.7
Melting	0.259	0.251	△ 6.1	3.1
Ingot Forming	0.159	0.152	△ 6.7	4.4
Continuous Casting	0.217	0.200	0.9	7.8
Crane	0.202	0.191	△ 4.7	5.4
Other	0.086	0.086	△ 19.4	0.0
Indirect Processes, Total	0.484	0.460	△ 11.5	5.0

2. In steel rolling, production dropped for 7 of 13 hot rolled products, particularly heavy rail, small shaped steel, and regular wire. This was the result of a 2-year slump in the construction field and a drop in demand for industrial and electric machines and automobiles. Production of cold finished steel materials also dropped due to reduced demand. In steel rolling as a whole, production dropped 6 percent. A drop in labor commitment was concentrated in the articles whose production dropped, but commitment increased greatly for articles whose production rose. As a whole, labor commitment was limited to a small decline, and because of this, labor productivity in steel rolling was down 5.7 percent, a continued drop from 1980.

Examining changes in labor productivity by process for hot and cold rolled steel materials, direct processes for hot rolled steel products dropped 9.2 percent (0.676 hours), a much greater drop than that for 1980 (3.7 percent). Indirect processes dropped 6.2 percent (0.447 hours); all processes dropped just as in 1980.

For cold rolled steel materials, stability processes rose 8.2 percent (0.067 hours), and refining processes rose 5.3 percent (0.302 hours). Many processes turned to a rise from a drop in 1980. However, a 0.5 percent drop in crane processes (0.183 hours) and a 58.2 percent drop in other processes (0.155 hours) caused the total for direct processes to drop 2.6 percent. Indirect processes, at 0.512 hours, rose 11.1 percent (Table 29).

Table 29. Required Labor Time and Percentage Rise in Labor Productivity for 1 Ton Rolled Steel, By Product and Process

Hot Rolled Steel Materials

<u>Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Total	1.040	1.123	△ 9.6	△ 8.0
Direct Processes, Total	0.619	0.676	△ 3.7	△ 9.2
Hot Air Furnace	0.061	0.064	△ 3.4	△ 4.9
Rolling	0.152	0.165	△ 7.0	△ 8.6
Refining	0.263	0.291	△ 1.2	△ 10.6
Crane	0.086	0.091	△ 7.5	△ 5.8
Other	0.057	0.066	△ 1.8	△ 15.8
Indirect Processes, Total	0.421	0.447	△ 19.6	△ 6.2

Cold Rolled Steel Materials

<u>Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Total	1.687	1.652	△ 17.9	2.1
Direct Processes, Total	1.111	1.140	△ 7.1	△ 2.6
Pickling	0.143	0.140	△ 13.5	2.1
Rolling	0.147	0.146	△ 4.3	0.7
Annealing	0.148	0.147	△ 5.0	0.7
Stabilizing	0.073	0.067	△ 10.6	8.2
Refining	0.319	0.302	△ 5.6	5.3
Crane	0.182	0.183	△ 7.7	△ 0.5
Other	0.098	0.155	△ 5.4	△ 58.2
Indirect Processes, Total	0.576	0.512	46.2	11.1

The number of personnel assigned to steel rolling as a whole has dropped 10.3 percent, against a small drop in labor commitment. However, the percentage of establishments which mention "Reconsideration of Personnel Assignments," as a measure taken in the last year for increasing labor productivity, is rising, and the percentage mentioning "Improvement of Product Quality and Control" is rising, as it is in steel refining.

3. In steel and pig iron casting, aside from a small production increase in steel casting, there was a considerable production increase in pig iron casting as well as malleable cast steel. For this reason, these products declined 4.8 percent overall. Even though steel casting production capacity (overall nominal capacity) increased, operation levels decreased, and while production capacity dropped slightly for pig iron casting and malleable cast steel, operation levels dropped considerably. Meanwhile, labor commitment in cast steel increased slightly, and dropped greatly in steel and pig iron casting and malleable cast steel. Thus, labor productivity maintained its increase for all these products.

Examining changes in labor productivity by process, molding processes at 6.23 hours rose 5.7 percent, extracting processes at 2.47 hours rose 4.9 percent, and melting processes at 2.00 hours rose 2.4 percent. As a result of a rise in labor productivity in main processes, direct processes at 13.87 hours showed a labor productivity increase of 2.2 percent. Also, indirect processes at 3.53 hours showed an increase in labor productivity of 3.5 percent (Table 30).

Table 30. Required Labor Time and Percentage Rise in Labor Productivity for 1 Ton Pig Iron Casting, By Process

<u>Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Pig Iron Casting	19.64	19.40	5.0	1.2
Direct Processes, Total	16.23	15.87	5.2	2.2
Research	0.76	0.92	△ 1.3	△ 21.1
Molding	6.61	6.23	4.8	5.7
Melting	2.05	2.00	5.1	2.4
Extracting	2.47	2.35	5.7	4.9
Heat Treatment	0.23	0.28	23.3	△ 21.7
Cast Finishing	4.11	4.09	5.7	0.5
Indirect Processes, Total	3.41	3.53	4.2	△ 3.5

Personnel assigned to all these products as a whole declined 1.5 percent, less than the 5.3 percent decline in labor commitment. As measures taken for increasing labor productivity in the past year, the percentage of establishments reporting "Small Group Activity (QC, ZD, etc.)" has risen. In steel casting, measures for machine facilities (e.g., "V-process" molding devices, etc.) are increasing, and the percentage for "Reconsideration of Personnel Assignments" is rising in steel and pig iron casting.

II. Machine-Related Industries Other Than Automotive (Lathe, Bearing and Electric Motors)

For the lathe, bearing and electric motor industries, production was held in check by sluggish domestic demand caused by stagnation in related industries. However, due to a drop in labor commitment, labor productivity rose for bearings and electric motors. In the lathe industry, there was a large drop, despite its being mitigated. Also, all three industries showed changes in personnel assignments ranging from increases to small declines, as opposed to a drop in labor commitment. This came with the introduction of NC machine tools, machining centers and industrial robots, and it can be thought that plans to shift to internal production of products is exerting an influence.

1. Due to sluggishness in related machine industries, regular lathes saw a large drop in production, continuing from 1980. Also, automatic lathes, which did well in 1980, leveled off in 1981. Because of this, total production for lathes showed a deep slump of 17.1 percent. Meanwhile, labor commitment declined for regular lathes and increased for automatic lathes. Labor productivity mirrored the change in labor commitment, rising for regular lathes and falling for automatic lathes. As a whole, the heavily weighted influence of the automatic lathes caused a 15.4 percent drop in labor productivity. It was the first drop in 6 years, since 1975.

Looking at changes in labor productivity by process, there was a large drop for both machine processing (146.7 hours, down 7.8 percent), and for assembly finishing processes (135.2 hours, down 15.0 percent). The total for direct processes, at 327.5 hours, represented a 13.0 percent drop in labor productivity. Indirect processes (40.2 hours, down 39.6 percent) also dropped greatly (Table 31).

Overall, personnel were up slightly, 0.9 percent, in contrast to a drop in labor commitment of about 4.4 percent. There has been a conspicuous drop in the percentage of establishments reporting "Subcontracting and Outside Order of Merchandise" and "Use of Temporary and Part-Time Workers" as measures for increasing labor productivity during the past year. Though the percentage is low, establishments reporting "Introduction and Improvement of the Shift System" are becoming more numerous. Also, although the percentage has dropped since 1980 for establishments reporting "Addition of New and Advanced Machines and Facilities" and "Automation and Changeover to Unmanned Operation of Existing Machinery," it is relatively high compared with other industries. An example of this is the fact that the number of establishments introducing and enlarging facilities for NC machine tools and machining centers, industrial robots, and FMS (Flexible Manufacturing Systems), is increasing.

Table 31. Required Labor Time and Percentage Rise in Labor Productivity
for One Lathe, By Process

<u>Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Total	318.7	367.7	7.0	△ 15.4
Direct Processes, Total	289.8	327.5	6.7	△ 13.0
Scribing	4.2	5.4	12.5	△ 25.6
Machine Manufacturing	136.1	146.7	4.0	△ 7.8
Heat Treatment	3.7	4.1	△ 15.6	△ 10.8
Assembly Finishing	117.6	135.2	8.7	△ 15.0
Parts and Product Inspection	18.8	24.0	10.5	△ 27.7
Painting	9.4	12.1	15.3	△ 28.7
Indirect Processes, Total	28.8	40.2	10.6	△ 39.6

2. Healthy domestic and foreign demand in 1980 for machines using bearings caused a marked production increase in the bearing industry, but production of ball and roller bearings leveled off in 1981 due to a peaking of domestic demand and a retreat in exports. Meanwhile, labor commitment dropped 4.4 percent for ball bearings and rose 2.2 percent for roller bearings. Because of this, changes in labor productivity reflected those in labor commitment, rising for ball bearings and dropping, although slightly, for roller bearings. Overall, a 2.2 percent gain was recorded.

Examining changes in labor productivity by process, labor productivity in lace rose 4.1 percent due to a 4.6 percent increase for machine processing (15.67 hours). Assembly processes (3.69 hours, up 7.3 percent) continued their increase of 1980. Due to the increase in labor productivity for both processes, the total for direct processes, at 25.14 hours meant a 3.2 percent overall increase in labor productivity, despite a drop in ball rollers (down 8.5 percent) and maintenance machines (down 1.3 percent). A drop in nearly all the indirect processes resulted in a total of 4.44 hours, a 4.4 percent drop in labor productivity (Table 32).

Personnel assigned to bearings as a whole dropped a slight 0.6 percent, compared with a 3.6 percent drop in labor commitment. As in the lathe industry, the large drop in the percentage of establishments reporting "Subcontracting and Outside Order of Merchandise" and "Use of Temporary and Part-Time Workers" was distinctive. The percentage for "Automation and Changeover to Unmanned Operation of Existing Machinery" was relatively high.

Table 32. Required Labor Time and Percentage Rise in Labor Productivity for 1,000 Bearings, By Process

<u>Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Total	30.23	29.58	18.8	2.2
Direct Processes, Total	25.96	25.14	17.8	3.2
Lace	17.60	16.87	19.3	4.1
Machine Processing	16.42	15.67	18.8	4.6
Heat Treatment	1.18	1.20	25.8	△ 1.7
Ball Rollers	1.99	2.16	21.0	△ 8.5
Maintenance Machines	2.39	2.42	2.0	△ 1.3
Assembly	3.98	3.69	17.8	7.3
Indirect Processes, Total	4.27	4.44	24.0	△ 4.0
Inspection, Packing	2.28	2.38	24.5	△ 4.4
Metallurgical Tools*	1.28	1.34	21.0	△ 4.7
Electricity	0.25	0.25	26.5	0.0
Transport, Storage	0.46	0.47	28.1	△ 2.2

* Repairs and maintenance

3. Production of electric motors (standard, three-phase squirrel-cage induction motors of 11 kilowatts or less) dropped greatly in 1980 due to a retreat in plant investment by related industries, particularly medium and small enterprises. However, an increase in exports for the latter half of 1981 brought a change to a 7.0 percent increase in production. Meanwhile, a 2.6 percent drop in labor commitment caused a 9.0 percent increase in labor productivity, a continuing rise from 1980.

Looking at changes in labor productivity by process, assembly processes at 0.183 hours rose 10.7 percent. Machine processing at 0.302 hours rose 9.0 percent, and winding and roughing processes, which carry medium to great weight, rose 8.7 percent, at 0.528 hours. All processes showed rates of increase exceeding those made in 1980 (Table 33).

[Table 33, next page]

Table 33. Required Labor Time and Percentage Rise in Labor Productivity for One Electric Motor (11 Kilowatts or Less), By Process

<u>Process</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Direct Processes, Total	1.217	1.107	5.6	9.0
Machine Processing	0.332	0.302	5.7	9.0
Steel Plate Operations	0.102	0.094	7.3	7.8
Winding, Roughing	0.578	0.528	6.5	8.7
Assembly	0.205	0.183	2.4	10.7

Personnel assignments increased 3.3 percent, in contrast with a drop in labor commitment. As measures taken in the last year to increase labor productivity, measures for equipment and facilities, such as "Introduction and Addition of New and Advanced Machines and Facilities" and "Automation and Changeover to Unmanned Operation of Existing Machinery," etc., has increased conspicuously.

Also, a large number of measures are showing higher percentages than those for 1980, such as "Reconsideration of Personnel Assignments," "Increasing Technical Skill Through Job Training," and implementation of "Small Group Activity (QC, ZD, etc.)." Further, as a concrete example of measures for equipment and facilities, a large number of establishments are reporting introduction and enlargement of facilities for NC machine tools and machining centers, automation of winding and conveyance processes, and changeover to numerical control. It can be seen that an overall switch to microelectronics is progressing.

III. Manufacturing Business for Automobiles and Accessory Products

1. Despite a stagnation in domestic demand, production of automobiles has continued to increase, due to healthy exports since spring 1980. However, because of a darkening export picture during the latter half of 1981, on top of continuing sluggish domestic demand, the large production increases up to 1980 changed to a drop in production in 1981.

Examining this by vehicle type, production levels for passenger cars went from a large increase in 1980 to a small increase; small and regular trucks went from increases in 1980 to a large decrease in 1981, and diesel trucks of over 7,000cc rallied from a large decline in 1980 to a small increase. Changes in labor commitment levels also followed the drop in production, dropping for small and regular trucks. However, the extent of the drop was less than that of the drop in production, and for small passenger cars, the increase in labor commitment exceeded the increase in production. Because of this, in contrast to a 5.9 percent drop in production levels

for automobiles as a whole, labor commitment increased 2.4 percent, and labor productivity fell 6.7 percent.

By vehicle type, regular gasoline trucks rose 9.3 percent, and regular diesel trucks (7,000cc and less) rose 0.5 percent, but small trucks suffered a large 12.3 percent drop, small passenger cars, a 4.7 percent drop, and regular diesel trucks (over 7,000cc) fell 3.8 percent.

Further, the drop in labor productivity for automobiles was the first since the early seventies.

Also, for small passenger cars, it was distinctive that the drop in labor productivity was mainly due to the increase in labor commitment to chassis unit processes and engine processes (Table 34).

Table 34. Required Direct Labor Time and Percentage Rise in Labor Productivity for One Automobile, By Type and Field

<u>Type/Field</u>	<u>Required Labor</u>		<u>Rise in Labor</u>	
	<u>Time (Hours)</u>		<u>Productivity (Percent)</u>	
	1980	1981	1980	1981
Small Passenger Cars	18.82	19.71	1.7	△ 4.7
Engine	3.18	3.49	△ 0.6	△ 9.7
Chassis Unit	3.20	3.64	2.1	△ 13.8
Body Cabin	3.75	3.90	1.8	△ 4.0
Overall Assembly	8.69	8.68	2.2	0.1
Small Trucks	17.65	19.82	9.1	△ 12.3
Regular Gasoline Trucks	24.02	21.79	2.8	9.3
Regular Diesel Trucks*	24.02	23.89	15.5	0.5
Regular Diesel Trucks**	90.31	93.73	1.0	△ 3.8

* 7,000cc or less

** Over 7,000cc

Personnel assigned to automobile production as a whole increased 1.3 percent, slightly less than the increase in labor commitment. However, looking at recent changes in personnel assigned to automobiles, since 1976, there has been a tendency for personnel to increase, even in years when labor commitment declined (in 1975, personnel declined 6.2 percent; in 1976, it rose 3.4 percent; in 1977, 1.9 percent; in 1978, 1.3 percent; in 1979, 3.5 percent; and in 1980, 1.8 percent). Personnel continued to increase in 1981.

As measures taken in the last year to raise labor productivity, the percentage of establishments reporting implementation of "Small Group Activity (QC, ZD, etc.)" rose further, and that for "Reconsideration of Personnel Assignment" and "Automation and Changeover to Unmanned Operation of Existing Machinery" also increased. Percentages for "Subcontracting and Outside Order of Merchandise," "Use of Temporary and Part-Time Workers" and "Use of Outside Technicians" dropped conspicuously. The trends for these various measures can be thought to be influencing changes in labor commitment and personnel assignment. As a concrete example of measures for equipment and facilities, percentages are increasing for establishments reporting introduction and enlargement of facilities for robots for welding and painting, automation due to installation of numerical control devices, changeover to flexible systems allowing parallel assembly of many different types of automobiles, etc.

2. In this year's survey, circumstances of introduction of industrial robots were investigated for 8 of 19 industries. Introduction of industrial robots among the 8 industries was most advanced for the automobile industry; 75 percent of establishments in this industry were using industrial robots; 4,798 robots in all. This amounts to 78 percent of the total of 6,123 units for all 8 industries.

Examining the numbers and distribution by process of the automotive industry's industrial robots in order to determine the processes in which their introduction has progressed, rough materials processes (casting, forging, and heat treatment as well as press and sheet metal processes) accounted for the majority. Next was machine processing (cutting and polishing of rough materials), while assembly processes (painting, assembly and inspection processes) accounted for relatively few robots. Dividing industrial robots into "manual manipulators and fixed- and variable-sequence robots" (hereafter termed sequence robots) and "playback and numerical control robots" (hereafter termed playback robots), each type accounts for about half of all industrial robots. However, in contrast to sequence robots, the majority of which are in machine processing, playback robots are mostly used in welding processes for rough materials. This reveals the differences in function and use between sequence and playback robots (Table 35).

[Table 35, next page]

Table 35. Numbers and Distribution of Industrial Robots for Automobiles,
By Process and Type

(1)		(2)	(3)	(4)
工 程		産業用ロボット計	マニュアル・マニプレータ、 固定・可変シーケンス	プレイバックロボット、 数値制御ロボット等
(6)	計 (5)	100 (4,798)	52 (2,508)	48 (2,290)
	粗 型 材 (7)	56 (2,668)	24 (1,129)	32 (1,539)
	鑄造、鍛造、熱処理 (8)	5 (258)	5 (236)	0 (22)
	プレス、板金 (溶接除く) (9)	2 (85)	2 (81)	0 (4)
	溶 接 (10)	48 (2,325)	17 (812)	32 (1,513)
	機 械 加 工 (11)	28 (1,351)	27 (1,288)	1 (63)
	組 立 (12)	16 (774)	2 (91)	14 (683)
	塗 装 (13)	2 (99)	1 (47)	1 (52)
	組立調整 (溶接除く) (14)	1 (53)	1 (44)	0 (9)
	溶 接 (15)	13 (622)	- (0)	13 (622)
	製 造 補 助 部 門 (16)	0 (5)	- (0)	0 (5)

Key:

1. Process
2. Total Industrial Robots
3. Manual Manipulators, Fixed- and Variable-Sequence Robots
4. Playback and Numerical Control Robots, etc.
5. Total
6. Manufacturing Field
7. Rough Materials
8. Casting, Forging, Heat Treatment
9. Press, Sheet Metal (Except Welding)
10. Welding
11. Machine Processing
12. Assembly
13. Painting
14. Assembly Adjustment (Except Welding)
15. Welding
16. Manufacturing Assistance Field

- Note: 1. Rough materials processes consist of casting, forging, heat treatment, press and sheet metal processes. Machine processing is cutting and polishing of rough materials. Assembly processes consist of painting, assembly and adjustment processes.
2. Intelligent Robots are included with playback and numerical control robots.
3. In columns two through four, numbers given are percent of total and (in parentheses) total number of units.

Here is an example of the extent to which the introduction of industrial robots has contributed to raising labor productivity. Examining the changes in the number of labor hours necessary for one small passenger car, the drop in hours of machine processing has been largest (50.5, with 1971 = 100). Next are rough materials processing (53.9, same index), and assembly processes (66.0). These figures reflect the labor-saving effects brought about by industrial robots (Table 36).

Table 36. Changes in Required Number of Labor Hours (Direct Processes Only) for One Small Passenger Car

<u>Year</u>	<u>Total</u>	<u>Rough Materials</u>	<u>Machine Processing</u>	<u>Assembly</u>
	時間	時間	時間	時間
1971	33.22 (100.0)	10.67 (100.0)	6.02 (100.0)	16.53 (100.0)
1973	28.12 (84.6)	8.61 (80.7)	4.33 (71.9)	15.18 (91.8)
1975	25.88 (77.9)	8.17 (76.6)	3.86 (64.1)	13.85 (83.8)
1977	23.25 (70.0)	7.04 (66.0)	3.26 (54.2)	12.95 (78.3)
1979	19.14 (57.6)	5.55 (52.0)	2.77 (46.0)	10.82 (65.5)
1981	19.70 (59.3)	5.75 (53.9)	3.04 (50.5)	10.91 (66.0)

Note: Figures given are hours; numbers in parentheses are percent (1971 = 100).

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ECONOMIC

PERSONNEL, POWER IN MATSUSHITA ELECTRIC INDUSTRIAL CO

Tokyo ZAIKAI TENBO in Japanese Jan 84 pp 47-88

[Article by business critic Masanori Atsuda and journalists Katsuo Yamamoto and Ikutoshi Takano on the Matsushita Electric Co: its founder, his philosophy, profiles of its top executives and subsidiaries.]

[Text] Attainment of a Business System That Will Perpetuate an Excellent Company

I have worked as a researcher and critic of business now for about 30 years. During that time I have also been a manager, although it was only for 6 years.

I may be simply piling up insignificant years, but I have had some experience. In looking over several thousand companies, I have come to know over 10,000 managers. When asked to give the best company and manager, I point to the Matsushita Electric Industrial Co and Mr Konosuke Matsushita.

In July 1917 Konosuke Matsushita left the Osaka Electric Light Co. With total assets of 33 yen 20 sen in retirement allowance, 42 yen in company savings, and 20 yen in personal savings, he established a business. In 65 years, that very small enterprise has become a huge business with 2.65 trillion yen in sales and working profits of 175 billion yen for the fiscal year 1983. But that is not why I cite Matsushita as being the best. Nor is my opinion based upon the static financial tables and analyses which report that it had a favorable balance of 47 billion yen in receipts for the same period.

I base my judgement on the fact that the life of this business is forever. A thriving system has been attained whereby the company will continue to be the best today, tomorrow, and the day after, in perpetuity.

People call Konosuke Matsushita the Taiko [Hideyoshi Toyotomi] of today.

But I do not agree. Why?

Hideyoshi Toyotomi did unify the whole country in one generation. But it is also true, however, that the Toyotomi Administration lasted only one generation.

As Hideyoshi foresaw in his death poem, "Life is and disappears like the dew; the Capital is no more than a dream," the Toyotomi line completely disappeared within just 17 years of his death. There is absolutely no chance of this happening to Matsushita Electric, however. I believe that it will continue to grow as it does now, even in the 21st century, and the pace of its splendid development will not slacken.

The principal reason for this is that Matsushita possesses a worthy business philosophy.

Kotaro Takahashi, who can be said to be the personification of "Matsushitism," entered the company in 1936, retired as chairman in 1977, and is now an advisor. He says:

"The reason why (Matsushita Electric) is such a tight-knit group is because a basic operating policy is in force throughout the organization."

He goes on to say:

"After I retired, I personally traveled to many areas of the world and did not see any examples of a business policy that is based upon a business theory as noble as Matsushita's. Without a doubt different enterprises are conducting business in various different ways, but as far as I know, there is not one which has come forth with a business theory as profound as the one that Konosuke Matsushita announced on 5 May 1932."

What kind of business theory is it?

It is embodied in both the "president's proclamation" and "Matsushita Electric's principles." The former I shall omit here because it is too long. The latter reads:

"We aim to improve and enrich the substance of social existence and make those items which are essential to everyday life plentiful. ...Without also neglecting our duty as industrialists."

The question is why was this business theory issued on 5 May 1932 at the time of the company's inception, but some 14 years later?

The Spirit of "People Are Assets" Constitutes the Basis of Personnel Policy

Konosuke Matsushita was born in an isolated village on the outskirts of Wakayama City on 27 November 1894. God tests those of whom great things are expected. They are made to suffer. Konosuke was no exception. He grew up with adversity.

He was the youngest child in a family of eight. The year he entered elementary school his eldest brother and sister and second elder brother became sick and died one after another. The family was poor. The year after, his father went to Osaka alone, probably to work. At age 9 Konosuke left his parents and started work as an errand boy in Osaka. It was a lonely existence. First he worked at a hibachi shop [that is, heaters] and then moved to a bicycle shop where he worked until age 15. After he worked temporarily at a cement company for about 3 months, he went to work in charge of interior wiring for the Osaka Electric Light Co. He did this for 7 years and then quit at age 22, as mentioned above, to become independent.

His motive for doing this is interesting.

"When Osaka got trolleys, I thought 'Ah! Electricity would be good' and so I changed my line of business."

He had foresight. It is also said that he became independent because he had been physically weak since birth. This way of thinking is just the opposite of what is normally considered to be the more commonsensical notion: Become a salaryman so that you can receive a stable monthly income.

In any event Konosuke Matsushita started his business. He began with the production of a socket which he himself had improved.

Written this way it is a nice story. However, his employees were two friends, Hayashi and Morita, and they quit after just 3 months. This left only his wife and her brother, Toshio Iue, who founded the Sanyo Electric Co after the war. Furthermore, the new-style socket did not sell.

Matsushita put the metal cap on an electric bulb to practical use and began to manufacture a modern attachment plug. This was successful and formed the foundation of the business. What made Matsushita Electric into what it has become today, however, was the epoch-making "cannon-type battery lamp" for use on bicycles which was developed in 1923.

To digress for a moment, managers like Konosuke Matsushita who spend their entire careers wrestling with product-development technology are very rare. He says:

"I must have about 100 patents and utility models, but they have expired and the exclusive production rights have stopped."

This history of working diligently to develop one new product after another is what made Matsushita Electric and sustains it today. It has become the company's "tradition." Public patents are a good indication of a company's technology-developing capability. Between 1971 and 1982 Matsushita has been granted a total of 60,210 patents, which ranks them

3rd among all Japanese companies. The two companies that are higher ranked, Hitachi and Toshiba, both have heavy electric machinery departments. If the 25,836 patents of the 6th-ranked Matsushita Electric Works were added, however, Matsushita would surpass 2nd-ranked Toshiba by more than 20 percent, which indicates how superior Matsushita's technology-developing capability really is.

To return to the story of the company's founding, even Matsushita Electric, which saw itself growing smoothly, could not avoid the Great Depression and the resulting panic in 1929. Suzuki Shoten, which grew rich during World War I, went bankrupt and the bank it dealt with, the Bank of Taiwan, was in critical condition. The financial panic was like a storm which intensified day by day, and blew across the entire country. And with the great stock market crash on Wall Street in 1929, a worldwide depression began.

The situation was not good and the following episode has been told:

The head of the Mitsubishi Corporation's Osaka branch, Yanase, ran to that company's headquarters in Tokyo and, without wiping the sweat from his face, panted:

"It's terrible! Every house [company] in Osaka has collapsed. The only things left standing are the Tenno Pagoda and Sumitomo!"

There is no reason to expect that Matsushita Electric would be the only company able to remain out of harm's way.

To make matters worse, the depression occurred just after Matsushita Electric's headquarters and main factory were newly established in Ohirakicho Osaka. This was like plucking a string already stretched to its breaking point. Sales suddenly dropped by more than half. By the end of December, inventory was so high that nothing more could be placed in the warehouse.

Konosuke Matsushita was bedridden at this time. His brother-in-law Iue and Itsuro Takehisa were taking care of matters in his place and they came to him with the following proposal:

"We can sell only half of our goods. Cutting production as well as the work force by half should get us over these difficulties..." Other companies were doing the same thing. It was probably the logical thing to do.

Although sick in bed, he was the manager and could not be left in the dark about the situation. He was deeply distressed.

Afterward Matsushita recalled that he "was really puzzled. I wavered between doing this and doing that. The moment I heard their resolute opinion I made up my mind. We would cut production by half immediately, starting that day. Not one employee would be laid off, however. The

way to go was to operate the factory for half a day, thereby cutting production by half. Employees would receive their full monthly salary without reduction. In return they would not take any holidays and work as hard as they could to sell the merchandise in stock."

This was very successful. By February of the following year all the merchandise in the overladen warehouse was sold. Not only did Matsushita Electric abandon half-day operations, but business activity returned to the point where the company had to produce as much as it could. Was this the origin of "marketing Matsushita"?

In any event this was not a plan which was carried out with the knowledge that things would get better in the future.

Konosuke Matsushita relates:

"No, if one were to [coolly] calculate, dismissals would have had to been made. That is why I did not make any calculations."

He did not make any shortsighted calculations on his abacus.

His ultimate calculation was that "people are assets and should not be trifled with [like the beads on an abacus]."

It would be correct to say that this is the foundation of Matsushita Electric's personnel policy. Apart from one unusual period right after the World War II this spirit has been passed on and nurtured as well.

"Business Theory" Inherited and Refined by Successive Generations of Top Executives

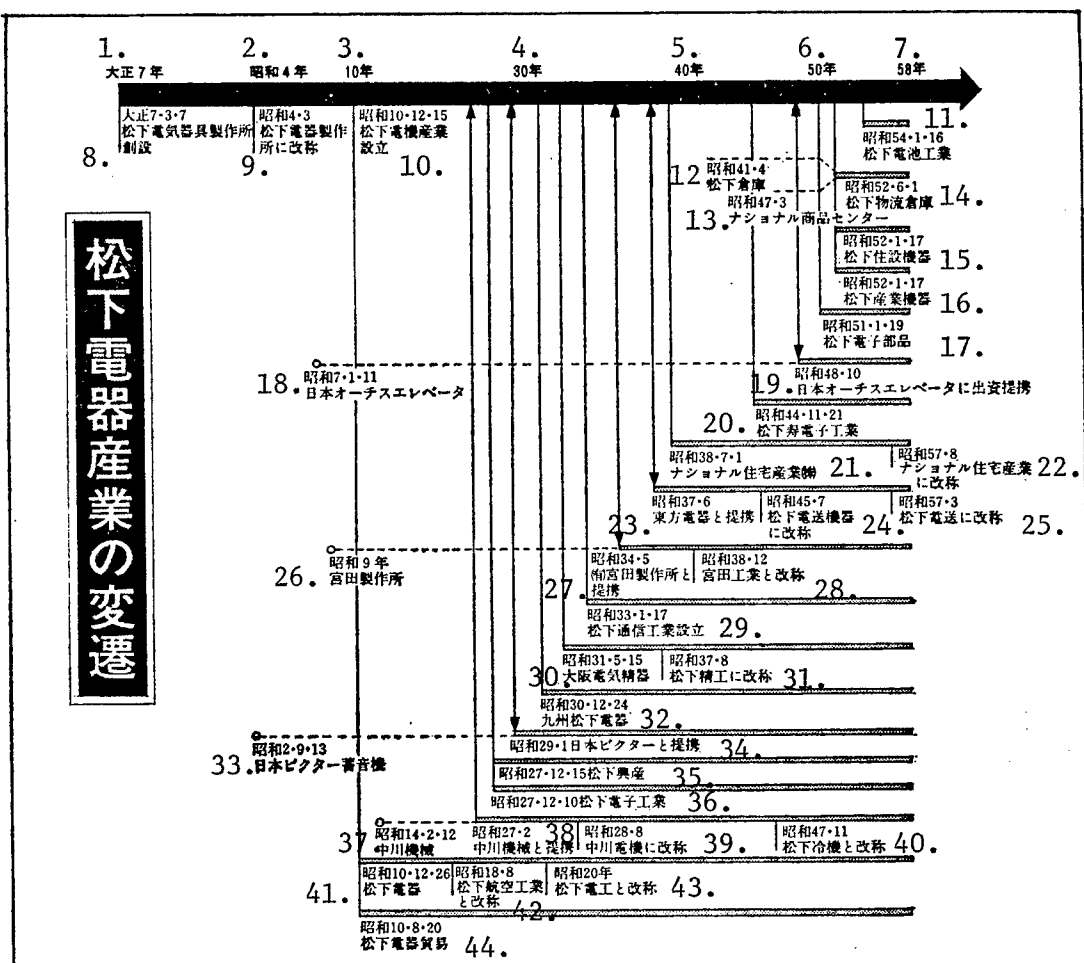
In any event Matsushita Electric was able to pull out of the depression and start out on the road to recovery quicker than other companies. Then its business theory was announced publicly. The following is conjecture on my part.

If the life of a person like Konosuke Matsushita lasted forever, there would have probably been no need for the bombastic announcement and written declaration of a business theory. It would simply be okay for him to consider measures extemporaneously in response to the circumstances at that time.

An individual's life is not eternal, however. What is forever is the company. Moreover, it is a business that started from scratch and was nurtured. Only someone who has founded a company could understand that kind of devotion.

"Everything will be all right as long as I am alive. I am confident that Matsushita Electric can ward off any recession and continue to grow. But if a depression such as this should occur in the next generation...?"

History of the Matsushita Electric Industrial Company



- Key:
1. 1918
 2. 1929
 3. 1935
 4. 1955
 5. 1965
 6. 1975
 7. 1982
 8. 7 March 1918 Matsushita Electric Equipment Works founded
 9. March 1929 name changed to Matsushita Electric Works
 10. 15 December 1935 Matsushita Electric Industrial Company established
 11. 16 January 1979 Matsushita Battery Industrial Company established
 12. April 1966 Matsushita Warehouse Company established
 13. March 1972 National Product Center established
 14. 1 June 1977 above two become Matsushita Product Distribution Warehouse Company

Key (continued):

15. 17 January 1977 Matsushita Housing Machinery Company established
16. 17 January 1977 Matsushita Industrial Machinery Company established
17. 19 January 1976 Matsushita Electronic Parts Company established
18. 11 January 1932 Otis Elevator Company of Japan established
19. October 1973 Matsushita investment in and tie-up with Japan Otis Elevator Company
20. 21 November 1969 Matsushita Judenshi Kogyo [Lifetime Electronics Industrial] Company established
21. 1 July 1963 National Housing Industrial Company Ltd. established
22. August 1982 name changed to National Housing Industrial Company
23. June 1962 tie-up with Toho Electric Company
24. July 1970 name changed to Matsushita Transmission Equipment Company
25. March 1982 name changed to Matsushita Transmission Company
26. 1934 Miyata Manufacturing Company established
27. May 1959 tie-up with Miyata
28. December 1963 name changed to Miyata Industrial Company
29. 17 January 1958 Matsushita Communications Industrial Company established
30. 15 May 1956 Osaka Electric Precision Equipment Company established
31. August 1962 name changed to Matsushita Seiko [Precision Manufacturing] Company
32. 24 December 1955 Matsushita Electric Company of Kyushu established
33. 13 September 1927 Victor Company of Japan established
34. January 1954 tie-up with Victor
35. 15 December 1952 Matsushita Kosan Company established
36. 10 December 1952 Matsushita Electronics Industrial Company established
37. 12 February 1939 Nakagawa Machinery Company established
38. February 1952 tie-up with Nakagawa
39. August 1953 name changed to Nakagawa Electric Company
40. November 1972 name changed to Matsushita Reiki [Cooling Machinery] Company
41. 26 December 1935 Matsushita Electric Company established
42. August 1943 name changed to Matsushita Aircraft Industrial Company
43. 1945 name changed to Matsushita Electric Works
44. 20 August 1935 Matsushita Electric Trading Company established

Matsushita undoubtedly felt the need to leave a clearly stipulated business theory when he thought along these lines. But Konosuke Matsushita was still 39 at the time, which is considered young today. It was different then. The span of life was said to be 50 years. Furthermore, Matsushita was approaching the critical age of 42 [unlucky year for men in Japan] and he was physically weak. No doubt he acutely felt the necessity of establishing a business theory for future managers to follow.

On 5 May 1932 he announced this theory and fixed this day as the first anniversary of the company's founding.

The greatness of Matsushita Electric lies in the fact that successive presidents have followed and prompted it.

The date is 10 January 1971. As is customary in the beginning of the year, Konosuke announces the company's business plans for the coming year. When he is finished he approaches the podium again to announce his retirement as president.

"On 27 November of last year I became 65. I have worked hard during all of those years. After much consideration, I have decided to step down as president and to keep an eye on the company from behind the scenes as chairman."

This surprised everyone. On the same day at a meeting of the board of directors, his son-in-law, Seiji Matsushita, was installed as the second president of Matsushita Electric.

A descendant of the old Count Hirata family, Seiji was wellborn. In 1935 he graduated from the law department of Tokyo Imperial University where he studied politics. After working at the Mitsui Bank, he entered Matsushita Electric in May 1940. His educational and employment backgrounds were ideal. Since he married Konosuke's only daughter, Sachiko, and was adopted into the Matsushita family, it is probably correct to say that Seiji was promised the presidency from the outset.

Seiji issued the following message to the employees after he assumed his post on 25 February.

"As you know, our former president has given us a firm business direction and philosophy about this company's duty. The policies and plans for every kind of task and the way they should be carried out all have their roots there."

This emphasized the fact that Matsushita's business theory was unchanging. Kotaro Takahashi, who rose to the position of vice president at the same time, also spoke:

"I do not have any special instructions as vice president. [Matsushita's] business theory is more than adequate for Matsushita Electric."

On 17 January 1977 when the top personnel were announced by Matsushita Electric, everyone was dumbfounded. This is because Toshihiko Yamashita, who was only number 25 in the pecking order on the board of directors, jumped to the president's chair. This is commonly known as "Yamashita's leap" and has become a metaphor for a momentous selection.

On the 60th anniversary of the company's founding, Yamashita said:

"What is the starting point for the establishment of Matsushita Electric? First, it should be a company upon which society looks favorably. Second, its system of operations should hold true not just in Japan, but anywhere in the world."

The company was trying to move in accordance with the basic theory of business. But times change and the employees' attitudes are not necessarily the same as before. The trend of the age, "individual happiness before that of the company," could not be ignored. Therefore, it became necessary for Yamashita as president to explain the business theory in up-to-date terms. In this sense, Toshihiko Yamashita is an excellent modern-day manager. He continued:

"To interject my personal opinion, it is necessary that the goal of the individual coincide with the goal of the company which is concerned for his well-being. In other words, the goal of the company must be an extension of the individual's goal."

Konosuke Matsushita expected a lot from Yamashita.

"The new president must not be just loyal and simply follow the traditional policies. This is important, but he must also be a person who can come up with new ideas that build upon them. I am sure Yamashita will do as expected."

He has responded splendidly.

Konosuke Matsushita's "business theory" of 5 May 1932 has passed through the hands of successive top managers, such as Kotaro Takahashi, Seiji Matsushita, and Toshihiko Yamashita. It has been refined by each of them in the above-mentioned ways and sheds a brilliant light.

"Business Is Set Up To Make Money"

At this point there might be some disagreement. "One cannot live by theory alone."

Right. But that goes without saying. A corporation which operates in a capitalist economy tries to maximize the profit on its investment by whatever means. It is a life or death struggle and customarily the winner will prosper and the loser will dropout.

There are no explanations or excuses.

Konosuke Matsushita is the "god of business." There is no reason why he would be indifferent to the "pursuit of profit." But in doing so he follows the rule of right, which is just a touch different from the manager who follows the rule of might.

松下電器産業歴代役員の変遷(昭和36年以降全役員)

NO.1

9.氏名	10.生年	11.学歴	12.入社年	1961 36	1962 37	1963 38	1964 39	1965 40	1966 41	1967 42	1968 43	1969 44	1970 45
14. 松下幸之助	明27	大2 関西商工		大7松下電器器具製作所創設, 昭10松下電器産業改組社長就任 〇									
15. 松下正治	大1	昭10 東大・政治学科	昭15	S10三井銀行入, S19当社監査役, S22取締役, S24副社長 〇									
16. 高橋荒太郎	明36	大9 神戸商業	昭11	S4朝日乾電池常務, S18当社取締役, S19常務, S24常務 〇									
17. 中尾哲二郎	明34	大12 東京工科学校	昭2	S10取締役, S12監査役, S27常務 〇									
18. 藤尾津与次	明40	昭5 神戸商高	昭5	S24常務 〇									
19. 榎坂武雄	明41	昭5 関西商工	大14	S24取締役, S33常務 〇									
20. 谷村博藏	明33	大7 京都三中	昭10	S17-22取締役 S33取締役 〇									
21. 西宮重和	明43	昭7 神戸商大附属 専門部	昭7	S33取締役 〇									
22. 小川 鑑	明41	昭6 東大独法科	昭34	S35当社取締役 〇									
23. 松本三郎	明30	大11 東大独法科	昭28	S11住友銀行入, S22同行常務, S28当社取締役 〇									
24. 百瀬 結	明30	大13 東商大	昭28	S13住友銀行入, S25大阪銀行常務, S28当社取締役 〇									
25. 梶谷陽美	明44	昭4 島根県立商業	昭4	S24取締役 〇									
26. 吉川朝治	明44	昭7 長岡商工	昭9	S24取締役 〇									
27. 松野幸吉	明39	昭8 関大(法)	昭14	S24取締役 〇									
28. 三由清二	明40	大15 滝川中学	昭5	S33取締役 〇									
29. 島田芳雄	明41	昭3 東京電機学校 附属学校	昭12	S35取締役 〇									
30. 東国徳	大2	昭10 横浜高工	昭10	S35取締役 〇									

Profile No 1 continued on following page

Prifile No 1 [continued]

1. 会長 2. 社長 3. 副社長 4. 専務 5. 常務 6. 取締役相談役 7. 取締役 8. 監査役													
'71 46	'72 47	'73 48	'74 49	'75 50	'76 51	'77 52	'78 53	'79 54	'80 55	'81 56	'82 57	'83 58	13. 現在
													取締役相談役
													会長
													顧問
													(故人)
													(故人)
													(故人)
													顧問
													(故人)
													(故人)
													(故人)
													(日本ビクター会長)
													(松下電子工業社長)
													(故人)
													(松下電池工業社長)

Profile of Successive Matsushita Electric Industrial Company Executives
(All Executives Since 1961) No 1

Key:

1. Chairman
2. President
3. Vice President
4. Managing Director
5. Executive Director
6. Director-Counselor
7. Director
8. Inspector
9. Name
10. Year of Birth
11. Educational Background
12. Year of Entry into Company
13. Current [Status]
14. Konosuke Matsushita/1884/1913 Kansai School of Commerce and Technology/Founded Matsushita Electric Equipment Works 1918, presidency 1935/Director-Counselor
15. Seiji Matsushita/1912/1935 Tokyo University, Politics/1940/ Entered Mitsui Bank 1935, Inspector 1944, Director 1947, Vice President 1949/Chairman
16. Kotaro Takahashi/1903/1920 Kobe Commercial School/1936/Asahi Kandenki [Dry Battery] Company Executive Director 1929, Managing Director 1949/Advisor
17. Tetsujiro Nakao/1901/1923 Tokyo School of Technology and Science/ 1927/Director 1935, Inspector 1937, Executive Director 1952/ (Deceased)
18. Tsuyoji Fujio/1907/1930 Kobe Commercial High School/1930/ Executive Director 1949/ (Deceased)
19. Takeo Enozaka/1908/1930 Kansai School of Commerce and Technology/1925/Director 1949, Executive Director 1958
20. Hirozo Tanimura/1900/1918 Kyoto Sanchu [Middle School Number 3]/1935/Director 1942, 1947, Director 1958/ (Deceased)
21. Shigekazu Nishimiya/1910/1932 Special Department Attached to Kobe Commercial College/1932/Director 1958
22. Tan Ogawa/1908/1931 Tokyo University, German Law/1959/Director 1960/Advisor
23. Saburo Matsumoto/1897/1922 Tokyo University, German Law/ 1953/ Entered Sumitomo Bank 1936, Managing Director Sumitomo Bank 1947, Matsushita Director 1953
24. Musubu Momose/1897/1924 Tokyo Commercial College/1953/Entered Sumitomo Bank 1938, Executive Director Osaka Sumitomo Bank 1950, Matsushita Director 1953/ (Deceased)
25. Akemi Kajiya/1911/1929 Shimane Prefectural Commercial School/ 1929/Director 1949/ (Deceased)
26. Asaji Yoshikawa/1911/1932 Nagaoka School of Commerce and Technology/1934/Director 1949/ (Deceased)

Key for Profile 1 (continued):

27. Kokichi Matsuno/1906/1933 Kanto University (Law)/1939/
Director 1949/Chairman Victor Company of Japan
28. Seiji Miyoshi/1907/1926 Takigawa Middle School/1930/Director
1958/President Matsushita Electronics Industrial Company
29. Yoshio Shimada 1908/1928 Tokyo Electrical School-affiliated
school/1937/Director 1960/(Deceased)
30. Toku Higashikuni/1913/1935 Yokohama School of Higher Technology/
1935/Director 1960/President Matsushita Battery Industrial
Company

1.	2.	3.	4.	5.	6.	7.	8.						
会長	社長	副社長	専務	常務	取締役相談役	取締役	監査役						
'71 46	'72 47	'73 48	'74 49	'75 50	'76 51	'77 52	'78 53	'79 54	'80 55	'81 56	'82 57	'83 58	13. 現在
													監査役
													常任監査役
													(故人)
													(故人)
													(松下冷機会長)
													(故人)
													(松下寿電子工業社長)
													監査役
													(松下電子工業常任監査役)
													専務
													副社長
													(松下電器貿易社長)
													(松下電子部品社長)
													松下電池工業常任監査役
													顧問

Profile No 2 continued on following page

□松下電器産業歴代役員の変遷(昭和36年以降全役員)

NO.2

9.	氏名	生年 ¹⁰	11.学歴	入社年 ¹²	1961'62.'63.'64.'65.'66.'67.'68.'69.'70 36. 37. 38. 39. 40. 41. 42. 43. 44. 45
14.	安川 洋	大3	昭11 大分高商	昭11	S 35取締役
15.	稲野 正二	大2	昭8 大商大高商部	昭8	S 35取締役
16.	芦田 泰三	明36	昭2 東商大	昭28	S 2住友生命保険相互入, S 22同社長, S 28当社監査役
17.	伊藤 武雄	明27	大8 東大独法科	昭35	T 8大阪商船入, S 22同社長, S 35当社監査役
18.	中川 懐春	明40	大14 成器商業	昭39	S 14中川電機創設専務就任, S 16同社社長
19.	小池 勇二郎	明41	昭6 東北大工	昭37	
20.	稲井 隆義	明42	大11 尋小	昭5	
21.	丹羽 正治	明44	昭7 大商大高商部	昭7	S 22松下電工社長
22.	時 実 肇 太	大2	昭7 大阪城東商業	昭7	
23.	佐伯 広 志	大3	昭11 大商大高商部	昭11	
24.	竹 岡 敏 一	大4	昭8 津 中	昭8	
25.	城 阪 俊 吉	大10	昭19 東北大工	昭21	
26.	磯村久太郎	大6	昭12 東商大 商学専門部	昭12	
27.	松 本 正 男	大4	昭5 大阪市西六 尋常高等科	昭9	
28.	国 信 太 郎	大5	昭8 柳井商業	昭8	
29.	浅 野 勇	大8	昭11 京都二商	昭11	
30.	遊 津 孟	明43	昭6 大阪外国学校	昭30	

"Profile of Executives" No 2

Key:

1. Chairman
2. President
3. Vice President
4. Managing Director
5. Executive Director
6. Director-Counselor
7. Director
8. Inspector
9. Name
10. Year of birth
11. Educational background
12. Year of Entry into Company
13. Current [Status]
14. Hiroshi Yasukawa/1914/1936 Oita School of Higher Commerce/
1936/Director 1960/Inspector
15. Seiji Hino/1913/1933 Osaka Commercial College (Department of
Higher Commerce)/Director 1950/Permanent Inspector
16. Taizo Ashida/1903/1927 Tokyo Commercial College/1953/Entered
Sumitomo Life Insurance Company 1927, President of that
company 1947, Matsushita Inspector 1953/(Deceased)
17. Takeo Ito/1894/1918 Tokyo University, German Law/1960/Entered
Osaka Commercial Shipping Company 1918, President of that
company 1947, Matsushita Inspector 1960/(Deceased)
18. Kaishun Nakagawa/1907/1924 Seiki Commercial School/1964/
Established Nakagawa Electric Company and became Managing
Director 1924, President of Nakawa Electric/(Chairman of
Matsushita Reiki Company)
19. Yujiro Koike/1908/1931 Tohoku Technical College/1962/(Deceased)
20. Takayoshi Inai/1909/1932 primary school/1930/(President of
Matsushita Judenshi Industrial Company)
21. Seiji Tanba/1911/1932 Osaka Commercial College (Department
of Higher Commerce/1932/President Matsushita Electric Works
1947/Inspector
22. Hayata Tokimitsu/1912/1032 Osaka Joto Commercial School/1932
23. Hiroshi Saeki/1914/1936 Osaka Commercial College (Department
of Higher Commerce)/1936/(Permanent Inspector of Matsushita
Electronics Industrial Company)
24. Keiichi Takeoka/1915/1933 Tsu Middle School/1933/Managing
Director
25. Sunkichi Shirosaka/1921/1944 Tohoku Technical College/1946/
Vice President
26. Kyutaro Isomura/1917/1937 Tokyo Commercial College (School of
Commerce)/1937/(President of Matsushita Electric Trading
Company)

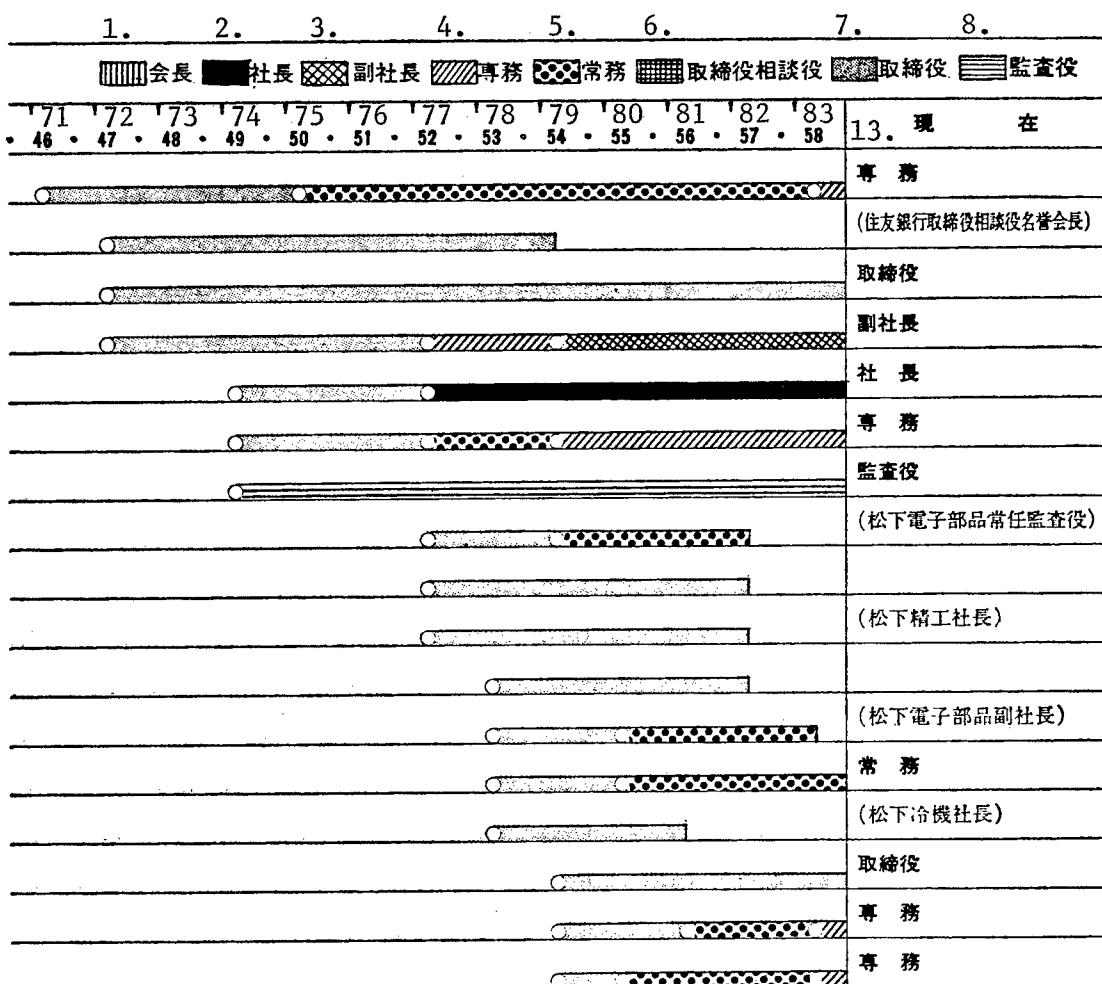
Key for Profile 2 (continued):

27. Masao Matsumoto/1915/1930 Osaka City (West) High School
Number 6/1934
28. Taro Kuninobu/1916/1933 Yanai Commercial School/(President
Matsushita Electronic Parts Company)
29. Isao Asano/1919/1936 Kyoto Commercial School Number 2/1936/
Permanent Inspector of Matsushita Battery Industrial Company
30. Takeshi Yutsu/1910/1931 Osaka School of Foreign Studies/
1955/Advisor

□松下電器産業歴代役員の変遷(昭和36年以降全役員)					NO.3									
9.	氏 名	生 ¹⁰ 年	11学 歴	12大 社 年	1961 ³⁶	'62 ³⁷	'63 ³⁸	'64 ³⁹	'65 ⁴⁰	'66 ⁴¹	'67 ⁴²	'68 ⁴³	'69 ⁴⁴	'70 ⁴⁵
14.	鶴 田 三 雄	大10	昭17 明 大(商)	昭19										
15.	堀 田 庄 三	明32	大15 京 大(経)	昭47	S 46住友銀行会長									
16.	中 山 素 平	明39	昭 4 東商大本科	昭47	S 45日本興業銀行相談役									
17.	原 田 明	大 9	昭16 東 大(法)	昭46										
18.	山 下 俊 彦	大 8	昭12 泉 尾 工 業	昭13										
19.	浅 田 義 雄	大 9	昭18 神 戸 商 大	昭18										
20.	新 井 正 明	大 1	昭12 東 大(法)	昭49	S 41住友生命保険社長									
21.	山 本 昌 平	大 6	昭10 兵庫県立工業	昭10										
22.	菊 池 廣 吉	大 8	昭14 名古屋商業	昭14										
23.	長 井 重 三 郎	大11	昭23 早大(理工)	昭23										
24.	樋 口 登	大 8	昭16 横浜専門学校	昭22										
25.	飯 田 義 男	大11	昭21 東北大(理学)	昭39										
26.	舟 橋 孝 夫	大 9	昭16 山 梨 高 工	昭27										
27.	青 木 節 夫	大15	昭23 大 阪 工 専	昭26										
28.	伊 部 恭 之 助	明41	昭 8 東 大(経)	昭54	S 52住友銀行会長									
29.	鈴 木 一	大 9	昭12 笠 岡 商 業	昭12										
30.	阿 部 健	大12	昭19 早大専門部	昭23										

Profile No 3 continued on following page

Profile No. 3 [continued]



"Profile of Executives" No 3

Key:

1. Chairman
2. President
3. Vice President
4. Managing Director
5. Executive Director
6. Director-Counselor
7. Director
8. Inspector
9. Name
10. Year of Birth
11. Educational Background
12. Year of Entry into Company
13. Current [Status]
14. Mitsuo Tsuruta/1921/1942 Meiji University (Commerce)/1944/
Managing Director
15. Shozo Horita/1899/1926/Kyoto University (Economics)/1972/
Chairman Sumitomo Bank 1971/(Honorary Chairman, Director-
Counselor Sumitomo Bank)
16. Motoyasu Nakayama/1906/1929 Tokyo Commercial College regular
course/1972/Counselor Industrial Bank of Japan 1970/Director
17. Akira Harada/1920/1941 Tokyo University (Law)/1971/Vice
President
18. Toshihiko Yamashita/1919/1937 Seno [Izumio?] Technical School/
1938/President
19. Yoshio Asada/1920/1943 Kobe Commercial College/1943/Managing
Director
20. Masaaki Arai/1912/1937 Tokyo University (Law)/1974/Sumitomo
Life Insurance Company President 1966/Inspector
21. Shohei Yamamoto/1917/1935 Hyogo Prefectural Technical School/
1935/(Permanent Inspector Matsushita Electronic Parts Company)
22. Hirokichi Kikuchi/1919/1939 Nagoya Commercial School/1939
23. Shigesaburo Nagai/1922/1938 Waseda University (Science and
Engineering)/1948/(President Matsushita Seiko Company)
24. Noboru Higuchi/1919/1941/Yokohama Professional School/1947
25. Yoshio Iida/1922/1946 Tohoku University (Science)/1964/(Vice
President Matsushita Electronic Parts Company)
26. Takao Funabashi/1920/1941 Yamanashi School of Higher Industry/
1952/Executive Director
27. Setsuo Aoki/1926/1948 Osaka Technical College/1951/(President
Matsushita Reiki Company)
28. Kyonosuke Ibe/1908/1933 Tokyo University (Economics)/1979/
Chairman Sumitomo Bank 1977/Director
29. Hajime Suzuki/1920/1937 Kasaoka Commercial School/1937/
Managing Director
30. Ken Abe/1923/1944 Professional School of Waseda University/
1948/Managing Director

□松下電器産業歴代役員の変遷(昭和36年以降全役員)

NO.4

9.	氏 名	10. 生 年	11.学 歴	12. 入社年	1961'62'63'64'65'66'67'68'69'70 36・37・38・39・40・41・42・43・44・45
14.	森 田 稔	大12	昭26 東工大(機械)	昭32	
15.	谷 井 昭 雄	昭 3	昭23 神戸工専	昭31	
16.	仲 井 光 夫	昭 5	昭27 同 大(工)	昭27	
17.	中 尾 敏 夫	大14	昭20 大阪工専	昭21	
18.	山 崎 孝	大11	昭15 松下電器 社員養成所	昭15	
19.	早 川 茂	大14	昭25 阪大(物理)	昭34	
20.	尾 崎 和 三 郎	大 3	昭10 大商大(高商部)	昭10	
21.	藤 岡 和 夫	昭 4	昭20 松下電器 社員養成所	昭20	
22.	西 馬 重 幸	昭 3	昭28 阪 大(工)	昭28	
23.	堂 西 司 郎	昭 5	昭28 阪大(法経)	昭28	
24.	岡 城 一 二 夫	昭 6	昭29 早 大(商)	昭29	
25.	横 井 克 己	大 9	昭18 京 大(法)	昭36	
26.	高 畑 敬 一	昭 4	昭25 金沢工専	昭25	
27.	鈴 木 忠 夫	昭 2	昭28 阪 大(法)	昭28	
28.	佐 久 間 昇 二	昭 6	昭29 大阪市大(経)	昭31	

Profile No 4 continued on following page

Profile No 4 [continued]

[illegible]

"Profile of Executives" No 4

Key:

1. Chairman
2. President
3. Vice President
4. Managing Director
5. Executive Director
6. Director-Counselor
7. Director
8. Inspector
9. Name
10. Year of Birth
11. Educational Background
12. Year of Entry into Company
13. Current [Status]
14. Minoru Morita/1923/1951 Tokyo Institute of Technology (Mechanics)/1957/Managing Director
15. Teruo Tanii/1928/1948 Kobe Technical College/1956/Vice President
16. Mitsuo Nakai/1930/1952 Doshisha University (Engineering)/1952/Executive Director
17. Toshio Nakao/1925/1945 Osaka Technical College/1946/Executive Director
18. Takashi Yamazaki/1922/1940 Matsushita Electric Employee Training Institute/1940/Executive Director
19. Shigeru Hayakawa/1925/1950 Osaka University (Physics)/1959/Managing Director
20. Kazusaburo Izaki/1914/1935 Osaka Commercial College (Department of Higher Commerce)/1935/Advisor
21. Kazuo Fujioka/1929/1945 Matsushita Electric Employee Training Institute/1945/Director
22. Shigeyuki Nishima/1928/1953 Osaka University (Engineering)/1953/Director
23. Shiro Dosai/1930/1953 Osaka University (Law and Economics)/1953/Director
24. Hifuo Okashiro/1931/1954 Waseda University (Business)/1955/Director
25. Katsumi Yokoi/1920/1943 Kyoto University (Law)/1961/Director
26. Keiichi Takahata/1929/1950 Kanezawa Technical College/1950/Director
27. Tadao Suzuki/1927/1953 Osaka University (Law)/1953/Director
28. Shunji Sakuma/1931/1954 Osaka City College (Economics)/1956/Director

He says:

"Business is set up so that a profit will be made. Without gathering talented people from all over the country, it cannot be carried out. The same is true with money. An unprofitable public enterprise is something that cannot be allowed. In certain cases it is a sin. I think this is the principle of money-making. If I do not make money, I will get out of business.

If I did not, the business would no longer be public; it would become a "personal" venture. Furthermore, [business] follows the laws of nature. It is natural to collect money when goods are sold. But there are many people who go to the banks to borrow without collecting money. They are doing something that is not natural and this violates the laws of nature."

So, how much profit should one aim at? On this subject Konosuke Matsushita states:

"The aim of business is only to contribute to society. If it contributes, then quite naturally it will be appropriately rewarded. The amount of compensation will depend upon the degree of contribution."

A splendid notion, but some people would not readily agree with his reasoning. "Why should profits be in accordance with the contribution to society." If one looks at things in a cut-and-dry manner, this is the kind of argument one hears:

Suppose you have an article that costs 10,000 yen. And suppose it usually sells for 11,000 yen. The profit would only be 1,000 yen. However, if by some means you were able to sell it for 20,000 yen, your profit would be 10,000 yen.

If this were the case, does this mean that the contribution to society in the latter instance is then times that of the former?

This is a petty and shallow way of thinking.

Matsushita Electric sets a price which society recognizes to be fair and reasonable. From the beginning there has never been the idea of "rip-off." Therefore, the only way for Matsushita Electric to increase profits is to reduce costs.

In this sense the contribution to society is measured by how much costs can be reduced. In order to do this, much effort is being put into developing technology and controlling production. Therefore, President Yamashita says: "Technology is business itself."

However, the goal of Matsushita Electric is not just to keep reducing costs forever. Above all else costs cannot go to zero. President Yamashita emphasizes that "the first priority is to lower costs as much as possible. But if we were to just keep reducing our costs, other makers would be able to sell at a lower price without reducing their costs. We would get bogged down in excessive competition. Therefore, the top manufacturers must develop new products that possess a high percentage of added value. Then if the other makers follow suit, we produce another new item."

Matsushita Introduces The "Division System" Before America

We now understand both the business theory and aims of Matsushita Electric. In order to realize and maintain them, however, systemization is needed. This is the "division system" of which Matsushita Electric is so proud. Before I get into this, however, I would like to relate a somewhat apocryphal story.

Matsushita Electric's headquarters are currently located in Kadoma City, Osaka Prefecture. The company decided to move to this site and build its main factory at the end of 1932, the year that the business theory was announced. It was the first step in making [Konosuke Matsushita's] vision a reality.

In any event it was decided that the company would move to Kadoma from its original site in Daikai. There was a need for 500,000 yen. It had on hand 200,000 yen. The remaining 300,000 yen would be financed by Sumitomo Bank without collateral. Matsushita Electric had long since had a very trustful relationship with the bank. However, Kadoma faced in an unlucky direction [literally demon's gate] from Daikai. Naturally some people thought "this will not do. We had better search for another place."

Unforeseen events are something that cannot be avoided in business. Furthermore, the manager is always all alone at the top with no one he can depend on. In this situation many managers would believe in the omens and become superstitious. The ordinary manager would probably give up on the "inauspicious" Kadoma and look for another suitable site.

But Konosuke Matsushita is different.

"Topographically Japan runs from southwest (the back demon's gate) to northeast (the front demon's gate). That is, the entire Japanese Archipelago runs right along in an unlucky direction. If one were really concerned about evil directions, one would be forced to get out of Japan all together. So one should not be shackled by this."

Thinking in this way, he bought 3,500 tsubo [tsubo equals 35.58 square feet] of land at Kadoma at 17 yen per tsubo.

Because he does not manage by emotion, but conducts business in terms of practicality, he has always been able to make well-timed investments in facilities and equipment. Konosuke Matsushita's philosophy was vividly displayed as well, during the postwar boom in electric home appliances.

The new factory was completed. And Konosuke Matsushita's genius was already working out the details of the "division system" at this time. Matsushita put his son-in-law, Toshio Iue, at the head of the Radio Division and his old friend, Itsuro Takehisa, at the head of the Lamp and Dry Battery Division. Along with his other duties as manager, Matsushita himself took over as head of the Wired Equipment, Synthetic Resins, and Electric Heat Division.

This has great significance.

With the introduction of American business administration techniques after the war, the Japanese economy grew at a phenomenal rate. Subsequently, Japanese enterprises became enormous in size and competed with each other to introduce the division system. It was one of the administrative fashions of the time. That is, it was considered by many to be just another one of the things, like technology, products, and methods, to have been imported at that time.

For other companies maybe, but not for Matsushita Electric.

Even in America, the so-called home of the division system, it was only around 1940 when the division system first started to become a topic of conversation. Matsushita Electric introduced it 7 years earlier.

The division systems of other companies are not just different in nuance. It would be more correct to say that they are completely different things all together.

What are the strong points of the Matsushita division system? I think the three biggest things are: (1) the division heads have 100 percent authority and responsibility; (2) it uses an internal capital system; and (3) there are accountants. Number two is especially important to the operations of the company.

Seiji Hino, a former vice president of Matsushita Electric, says: "The Matsushita division system has come a long way since its inception in 1933, but it has just about been perfected since the internal fund system was adopted in 1954."

"Division Heads Are Like Company Presidents"

Now, on the subject of internal funds...

A corporation is a corporation because it has capital. It is the same with each of the Matsushita divisions. They each have their own funds. This is known as the "internal fund" system.

How is the amount of funds determined? What corresponds to paying stockholders?

When a new division is inaugurated, the company makes a theoretical calculation and provides it with all of its facility and operating funds. In terms of money, business activity is nothing more than the circulation of funds.

Each division carries on its business using these funds.

If it were an independent company and did not make a profit, however, it would not have to pay taxes and, as a rule, it would not have to pay dividends. But a Matsushita division has to pay the main company 10 percent interest on its internal funds each year. This is known as "capital interest."

If the division is not able to make a profit over and above the 10 percent interest standard, this would be what Konosuke Matsushita calls a "sin."

If that were all a division had to do was pay capital interest of 10 percent, things would be easy.

But this would not be business-like for Matsushita Electric, overall. The main office has operating expenses also, and, as a corporation, it must pay taxes and dividends. For this reason each division must give the main office 60 percent of its profits after the capital interest payment. Furthermore, whether there is a loss or not, it must pay 3 percent of its sales to the main office.

After all these payments have been made, the division can finally keep the remaining profits. There is no capital interest on this amount. Each division is free to use this money as it wishes. The more money the division makes, the more funds the division will have for itself and it will come to resemble a superior company.

On the other hand, if the division's income is worse than anticipated, quite naturally its operating funds will become depleted.

When this happens the division is absolutely prohibited from somehow postponing payments and going to a bank for loans. It must borrow the amount it is short from the main office. If the division does not make great efforts, it will be over burdened with interest payments to the main office and its revenue situation will grow worse.

In reality, however, "borrowing money from the main office" is extremely difficult.

Konosuke Matsushita states that "a division head is like a company president. In the real world, would a company that says 'we have a deficit and are going under' go to a bank to borrow money? And if

there were such a company, would it be able to borrow the money?" One would not expect the company whose president has been saying this for a long time to readily agree to such loans. And if the division were finally able to borrow, the interest would be high and it would be hard pressed for repayment.

The divisions which are in tune with the trends of the day will proliferate and those that are not must become practical and try to alter their condition. Furthermore, they must always possess a system which can automatically react to the business climate.

With regard to item number three, "accountants," it is sufficient to understand that each is a "business manager" whose status has been vouched for by the main office. I would, however, next like to talk about the authority and responsibilities of division heads.

A Perfected System Which Cultivates Next Generation Managers

A division does not resemble an independent company only in the area of finances.

They are similar, as well, with respect to purchasing raw materials and supplying goods.

First, when a division is purchasing something from another division, the price should be based on the market value. In the rare event that the price which is asked for is higher [than the market value], the division is permitted to make its purchases directly from a market outside of Matsushita Electric.

On the other hand, there are no excuses for failure.

For example, the yen was very strong in 1978. This was not the fault of the divisions. It was a so-called act of God, something beyond their control, but just the same those divisions whose business depended mainly upon exports suffered a severe blow. At that time, Toshihiko Yamashita clearly stated:

"The situation is certainly serious for these divisions and we understand the reason for it, but there is nothing we can do about it. The only question is whether they can survive or not. If a division does not survive, then we will have to look for another division head."

It was said that [the struggling divisions] covered 60 percent of their exchange loss by raising prices and the remaining 40 percent by other practical means.

If a division head is charged with the responsibility [for the division's success or failure], he is also given the authority [to make and execute policies]. Advisor Kotaro Takahashi also emphasizes this when he responds to inquiries from other companies.

"If you wish to adopt a Matsushita-type division system, are you prepared to give each division 100 percent authority along with the usual responsibilities? ;f not, the system will not be effective?"

Furthermore, this system also cultivates the managers of future generations.

Toshihiko Yamashita recalls the time when he was a division chief himself.

"I only thought about not going bankrupt. I turned a deaf ear to criticism and rumors and read books, instead of drinking sake, in order to drown my sorrows and forget the various unpleasant things. Books on astronomy did the most to relieve the stress."

Kotaro Takahashi relates that one of the biggest reasons for "Yamashita's leap" was because "as head of the Cooler Division, he succeeded in establishing an Air Conditioner Division."

The Matsushita Electric divisions have the distinction of allowing those in charge the freedom to display their originality and ability in this way. In the area of commodities at least, each division can react flexibly to the movement of the market by linking production directly to marketing. This kind of complete control is an advantage of small businesses.

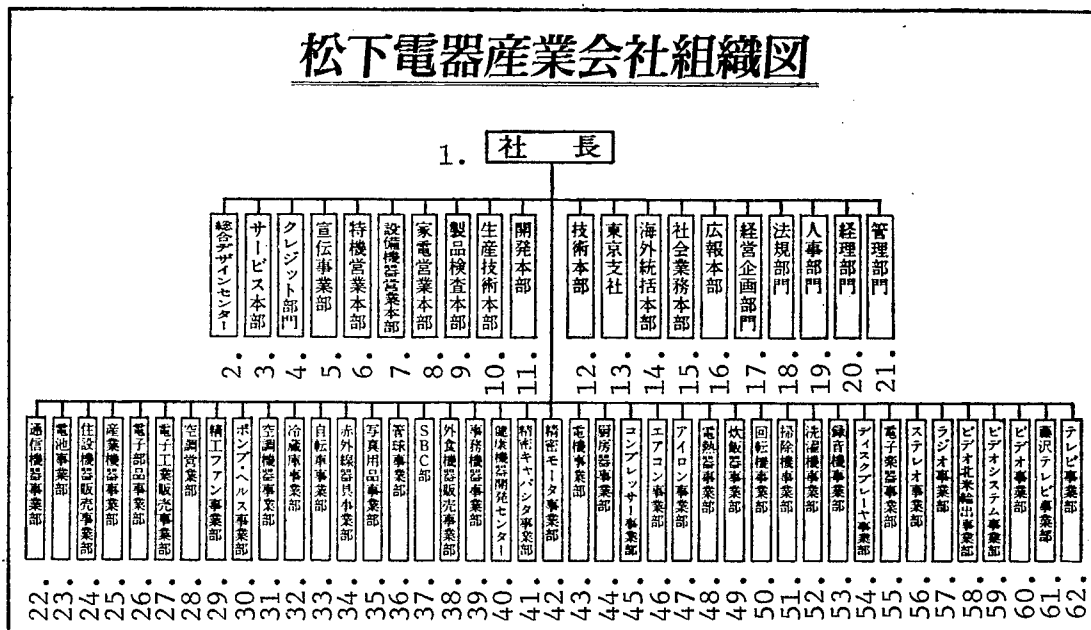
The business theory is in full force and the aims are evident as well. The genius of Konosuke Matsushita was able to create a system which remains forever fresh in order to realize those aims. The 21st century is the time when Matsushita Electric will finally become an enterprise that is well known throughout the world. Naturally the name of Konosuke Matsushita will be remembered forever as the god of business who accomplished all of this.

"Yamashita Personnel" Enter When The System Is Completed

"A wealth of experience is of course important, but the ability to act is what is needed today. Among those with the same ability, the younger person is preferable because he has the energy. In order to give the top directors a varied experience, they are shifted about thereby producing business vitality."

Over the past 6 years under Yamashita, personnel underwent a fierce process of rejuvenation. Yamashita's presidency has been characterized by attacking things rationally. For example, the year after he became president all 4 vice presidents, who averaged 70 years in age, were retired. And every year after that he continued with the youth movement. In the 2 years after his appointment, Yamashita applied his drastic treatment: more than half of the working directors, 13 in all, were retired.

Matsushita Electric Industrial Company Organization



Key:

1. President
2. Overall Design Center
3. Service Headquarters
4. Credit Bureau
5. Publicity Department
6. Business Headquarters for Special Machinery
7. Business Headquarters for Facility-Oriented Machinery
8. Business Headquarters for Home Appliances
9. Commodity Inspection Headquarters
10. Production Technology Headquarters
11. Development Headquarters
12. Technology Headquarters
13. Tokyo Branch Office
14. Headquarters for All Overseas Affairs
15. Social Services Headquarters
16. Advertising Headquarters
17. Planning Department
18. Legal Department
19. Personnel Department
20. Accounting Department
21. Administrative Department
22. Communications Equipment Division
23. Battery Division
24. Housing Machinery Marketing Division
25. Industrial Machinery Division

Key (continued):

26. Electronic Parts Division
27. Electronics Industry Marketing Division
28. Air Conditioner Business Division
29. Precision Manufactured Fan Division
30. Pump and Health Division
31. Air Conditioning Machinery Division
32. Refrigerator Division
33. Bicycle Division
34. Infrared Apparatus Division
35. Photography Equipment Division
Photography Supplies
36. Fluorescent Light Division
37. SBC [Service Bureau Corporation?] Division
38. Restaurant Machinery Marketing Division
39. Office Equipment Division
40. Health Equipment Development Center
41. Microcapacitor Division
42. Micromotor Division
43. Electric Machinery Division
44. Kitchen Equipment Division
45. Compressor Division
46. Air Conditioner Division
47. Iron Division
48. Electric Heater Division
49. Rice Cooker Division
50. Rotary Equipment Division
51. Vacuum Cleaner Division
52. Washing Machine Division
53. Recording Equipment Division
54. Disc Player Division
55. Electronic Musical Instruments Division
56. Stereo Division
58. North American Video Exports Division
59. Video System Division
60. Video Division
61. Fujisawa TV Division
62. TV Division

Matsushita Electric would become enormous and rigid if he did not seriously inject some new blood into the executive group and let in some fresh air. And this, Yamashita decided, would be dangerous for the future of the company.

But because these decisive personnel changes flew directly in the face of the traditional Matsushita paternalistic ideal, there was a lot of unrest within the company.

When Konosuke Matsushita, the "god of business," had his own individual shop, he took care of his head clerks who had taken the good along with the bad in the early days. This led to an aging executive class and an organization which in general became bureaucratized and somewhat stagnant. Therefore, Yamashita took a scalpel to this situation, but the backlash was strong.

President Yamashita himself said that "as a businessman I did not defer to those who were older than me. As seniors, however, I knew that they had the wisdom of experience and I recognized the importance of incorporating it."

Realizing the negative effect that the sudden personnel changes were having on the company, it seemed that afterwards Yamashita put on the brakes. But over time the executives became Yamashita personnel. President Yamashita himself says that "although the youth movement is proceeding along, it is still far from completed." But today Keiichi Takeoka, a managing director, is the only executive who is older than Yamashita.

One can understand how rapidly the youth movement has been progressing when one notes that there were only two executives younger than Yamashita when he assumed the presidency. In the 7 years since then Yamashita has handpicked 21 directors. In a certain sense it could probably be said that the Yamashita organization is just reaching maturity.

The Shift From "Clerks" To "Technocrats"

Beginning with the retirement of the four vice presidents, the series of personnel changes which produced the Yamashita organization has served to change the make-up of the executive group: The "clerks" have been replaced by technocrats. This constitutes the Matsushita Renaissance. Teruo Tani, who has been rising rapidly in the company, is seen as the next head of the technocrat group.

"That is why I was so hesitant about coming out here. You ask me if I have heard anything from President Yamashita, but I have not. Anyway, please do not tease. I'm a bit embarrassed by all of this you know."

So answered a perspiring Tani to the Keidanren [Federation of Economic Organizations] Press Club journalists, who continually asked about the appointment of the next president. The occasion was his appointment as vice president in February 1983 and there was a conference together with the announcement of a new product at a Tokyo hotel. But these press meetings are often used as an indirect means of selling a candidate for president. And since Matsushita Electric's headquarters is located in Osaka and Tani was not very well known in Tokyo, this was considered to have been his "debut."

Although not as quick as "Yamashita's leap," vice president Tani's rate of promotion has been unusually fast. After he was appointed director in February 1978, he rose to the position of executive direction within

just 2 years. After 1 year in that position, he became a managing director. And then just after 1 year's experience there, he was appointed vice president. He rose rapidly in the world, going from success to success.

Tanii has a unique background. He is not a dyed-in-the-wool Matsushita Electric Co man, but entered the company after experience elsewhere. He is from Kino City, Osaka Prefecture and was born in April 1928. He is 55 years old, 8 years younger than President Yamashita who was born in 1919. His family ran a sheet metal processing factory. He graduated from Kobe Technical School (the present engineering department of Kobe University) in 1948. With no particular aim in mind Tanii entered the Shikishima Spinning Co, which was one of the 10 biggest spinning companies at the time. He quit after 6 months and returned home for a short time to work on some youth group projects.

"I entered a small business finance company to stop my life of aimlessness and because there were not many chances for reemployment after the war. I would get up early in the morning, put on work clothes, and do any job. I drove a truck and supervised workers thereby getting a more than adequate taste of both the 'good and bad' aspects of a small business."

Tanii entered Matsushita Electric in 1955 through the introduction of the Matsushita Transmission Co chairman from Kino. He was assigned to the Communications Division as a regular employee without a title and started his career once again as a machine technician. After that he worked exclusively in the strategic area of tape recorders and video equipment.

Tanii came to the forefront after he was appointed head of the Video Division.

Matsushita Electric's VTR's currently hold the number one position in the world, but it was not always this way. At first, there was the Sony-led Beta group offensive and, in addition to this, the various companies which make up the coalition of Matsushita Electric's forces, such as Victor Co of Japan and Matsushita Judenshi Co, did not have a unified strategy. The company was treading a difficult path.

It was "Mr VRT," Vice President Tanii, who reorganized the Video Division and made it into Matsushita Electric's money-making division.

Yamashita's personnel appointments are based upon, as he himself says, "performance." It is only ability that counts. Indeed his decisions are sometimes said to be "too dry" [unemotional without regard for seniority, loyalty, etc.].

After the oil shock, there were many export-oriented divisions whose performance slumped due to the high value of the yen. Yamashita matter-of-factly stated that "complaining will not change anything. If things do not improve, then the only thing left to do is find someone who will improve them. Doing as much as one can is expected and I can only base my decisions upon results." Such is the severity of his decisions.

役員担当一覧

役 1. 職	氏 2. 名	担 3. 当
4. 会 長	松下正治	
5. 社 長	山下俊彦	
6. 副 社 長	原 田 明	
7. "	城 阪 俊 吉	
8. "	谷 井 昭 雄	
9. 専 務	竹 岡 敬 一	北米担当
10. "	浅 田 義 雄	渉外担当
11. "	鶴 田 三 雄	東京支社長
12. "	阿 部 健	人事担当
13. "	鈴 木 一	経理担当
14. "	森 田 稔	生産技術本部長
15. "	早 川 茂	技術本部長兼開発本部長
16. 常 務	舟 橋 孝 夫	海外統括本部長
17. "	仲 井 光 夫	特機営業本部長
18. "	山 崎 孝	クレジット担当
19. "	中 尾 敏 男	法規管理担当
20. 取 締 役	中 山 素 平	
21. "	伊 部 恭 之 助	
22. "	藤 岡 和 夫	音響グループ担当
23. "	西 馬 重 幸	映像グループ担当
24. "	堂 西 司 郎	宣伝事業部長 総合デザインセンター担当
25. "	岡 城 一 二 夫	設備機器営業本部長
26. "	横 井 克 己	社会業務本部長
27. "	高 畑 敬 一	サービス本部長
28. "	鈴 木 忠 夫	電化グループ担当
29. "	佐 久 間 昇 二	家電営業本部長
30. 取締役相談役	松下幸之助	
31. 常任監査役	樋 野 正 二	
32. 監 査 役	丹 羽 正 治	
33. "	新 井 正 明	
34. "	安 川 洋	

A Summary of the Executives and Their Areas of Responsibility

- Key:
1. Position
 2. Name
 3. In Charge of:
 4. Chairman/Seiji Matsushita
 5. President/Toshihiko Yamashita
 6. Vice President/Akira Harada
 7. Vice President/Sunkichi Shirosaka
 8. Vice President/Teruo Tanii
 9. Managing Director/Keiichi Takeoka/North America
 10. Managing Director/Yoshio Asada/Public Relations
 11. Managing Director/Mitsuo Tsuruta/Tokyo Branch
 12. Managing Director/Ken Abe/Personnel
 13. Managing Director/Hajime Suzuki/Accounting
 14. Managing Director/Minoru Morita/Production Technology Headquarters
 15. Managing Director/Shigeru Hayakawa/Both Technology and Development Headquarters
 16. Executive Director/Takao Funabashi/Headquarters for All Overseas Affairs
 17. Executive Director/Mitsuo Nakai/Business Headquarters for Special Machinery
 18. Executive Director/Takashi Yamazaki/Credit
 19. Executive Director/Toshio Nakao/Legal Administration
 20. Director/Motohira Nakayama
 21. Director/Kyonosuke Ibe
 22. Director/Kazuo Fujioka/Music Group
 23. Director/Shigeyuki Nishima/Video Group
 24. Director/Shiro Dosai/Publicity Department and Overall Design Center
 25. Director/Hifuo Okashiro/Business Headquarters for Facility-Oriented Machinery
 26. Director/Katsumi Yokoi/Social Services Headquarters
 27. Director/Keiichi Takahata/Service Headquarters
 28. Director/Tadao Suzuki/Electrification Group
 29. Director/Shunji Sakuma/Business Headquarters for Home Appliances
 30. Director-Counselor/Konosuke Matsushita
 31. Permanent Inspector/Seiji Hino
 32. Inspector/Seiji Tanba
 33. Inspector/Masaaki Arai
 34. Inspector/Hiroshi Yasukawa

In terms of age, it is quite natural that Vice President Tanii, who went from one success to another under President Yamashita with his unemotional, performance-based promotion decisions, would be regarded as his successor.

President Yamashita, himself, jokingly says that "Konosuke Matsushita seems to think that I will work as president till I die." More seriously he adds, "I think that it would be more natural to select the next president from among the current vice presidents and not have anyone again take the jump that I took. Tanii is still young so he could work for a considerable amount of time [as president]."

When Konosuke Matsushita appointed Yamashita president, he said "I would like to have you work for at least 10 years." Yamashita openly says that "10 years is too long. About 6 years is better." Although he considers 6 years to be the physical and mental limit for life at the top, Yamashita is already about to enter his 8th year as president. He has started "Action '86," a Major reform project which aims at a "new Matsushita" by 1986. There are many who feel that the reins will be turned over when that is completed.

But Yamashita says "I do not have any thoughts about staying to take care of things until my work bears fruit. Work is an endless process. No matter where you stop, you will always be in the middle of something. It is human to want to see the fruit of one's labors, but there would be no end to it. Ultimately the decision about my stepping down lies with Konosuke Matsushita." With a president in office like Yamashita who has no desire to hold onto his position forever, it is impossible to guess when the baton will be passed to his successor.

A Yamashita Organization Comprised of a Galaxy of Capable Executives

Vice President Tanii is in charge of carrying out "Action '86," which can also be called "Yamashita's revolution." His appointment reflects Yamashita's desire to groom Tanii for the top spot. Through this "reform" movement which extends throughout the entire Matsushita group, Tanii will be able to broaden his intellectual horizon. The appointment also reveals the warmth of the rationalistic president. Recalling his bitter experience of being asked to assume the presidency all of a sudden without any preparation, Yamashita wants to prepare the way for his successors by making certain strategic arrangements.

The other members of the vice president group are Akira Harada, who is at the head of the list, and Shunkichi Shirosaka.

Akira Harada, like Tanii, also came to the "pureblooded" Matsushita Electric company in 1971 after serving elsewhere. He worked in MITI. During the U.S.-Japanese textiles negotiations he was the director-general of international trade and he used this experience when the color TV dumping matter came up. Harada is famous for saying that America's one-sided assertions "are like arbitrarily putting a golf hole in the middle of the fairway" and turning negotiations in Japan's favor. The year after

he entered the company he became president of Matsushita America and was indispensable to the company's strategy of becoming aggressive internationally. For just that reason, Harada spent a lot of time flying around overseas carrying his favorite tennis racket. If Yamashita is a clear-cut person, Harada is clear-headed.

Furthermore, he has keen insight into human nature which fits the Matsushita profile perfectly. Harada is not just another former government official who has taken a post with a private company. When he was head of the Trade Promotion Bureau and giving out commendations at an awards ceremony for superior businesses, he would purposely step down from the platform and present the awards to the recipients directly.

It is said that Harada understands the Matsushita spirit more than any lifelong executive. Konosuke Matsushita has a great deal of confidence in him for just this reason. An example is that Harada has also been involved in Kanasi financial circles, working as vice representative secretary of the Kanasi Committee for Economic Development since April.

Shunkichi Shirosaka is the so-called general leader of the technical group. He is the manager of the Wireless Research Institute which formed the foundation of Matsushita technology. In this capacity he is also a father raising electronics technicians. After he graduated from the engineering department of Tohoku University in 1935, he spent 11 years as a technical officer in the Navy. In 1946 he entered Matsushita Electric. He is a scholarly type of person who lectures at Osaka University. He has also displayed his political capabilities by bringing some 20 home appliance and computer manufacturers in line with Matsushita's standardized home personal computer "MSX."

Keiichi Takeoka, who is one of the many talented managing directors, is in charge of North America. He was one of the first people in the Radio Division to become involved in overseas affairs. He was president of Matsushita America and is highly regarded for getting one-site production in America on the right track. He is also the only executive who is older than President Yamashita. As a man of integrity, he has many "disciples."

Managing Director Yoshio Asada is in charge of public relations. He has a cheerful personality and very extensive experience. He moved to his present position from the Business Headquarters for Special Machinery which he headed. Asada has been working to successfully bring about a tie-up with IBM.

As president of Matsushita Tokyo, Mitsuo Tsuruta is the "face" of Matsushita Electric in Tokyo. He has the reputation of being affable and courteous, a man who does not make any enemies of the many acquaintances he has in government and industry. When the pollution and consumer movements were at a fever pitch, his attentive and sunny nature helped overcome the problems.

Ken Abe is in charge of personnel. It is said that he had no lack of heroic episodes in the past. He has a hearty spirit and a good head for figures. At first glance Abe seems to be the quiet type, but he has toiled long and hard in the business field.

Hajime Suzuki succeeded former vice president Seiji Hino as the head of the Matsushita accounting system. He worked in the dry battery field where he was known as the "stingy battery." He is a human computer who carries out calculations to the smallest monetary unit [sen = 0.01 yen, rin = 0.1 sen, mo = 0.1 rin]. He is one of the supporters of the Yamashita organization and wants the company to obtain a business profit of 20 percent like the successful foreign companies.

Besides these gentlemen, there is Minoru Morita who is the head of the Production Development Headquarters. This past February he was promoted from executive director to managing director.

Morita's motto is "he who does one thing well will do everything well." In addition to concentrating on manufacturing production equipment, he is also further refining the mass production technology of which Matsushita Electric is so proud. Using Matsushita's robot-based model factory as a foothold, Morita wants to market the FA [factory automation] system overseas. He states that "industry must continually replace the old with the new. The Toyota merger [with GM] is significant only as a form of shock treatment..." Morita is one of the brains in the Yamashita organization.

Shigeru Hayakawa, who heads both the Technology and Development Headquarters, is another important person in the field of technology. He was scouted while working as an assistant at Osaka University and subsequently joined the company. As Vice President Shirosaka's right-hand man, Hayakawa is entrusted with important duties in the technological area. A logical man of few words, he is a bit of an odd ball. The greeting he gave upon assuming his present position lasted just one minute.

The executive director and regular director classes of executives in the Yamashita organization are also populated with those who are highly capable in administrative affairs. Mitsuo Nakai, the head of the Business Headquarters for Special Machinery, was born in 1930 and is young at 53 years old. He became a director when Tanii became a vice president. He rose to the position of executive director so quickly that for some time he was viewed as a strong candidate for president. The Business Headquarters for Special Machinery is an advance force, spun off from the Home Appliance Division, that is focussing on OA [office automation]. This is an area upon which President Yamashita has been concentrating most of his efforts. A lot is expected of Nakai.

Including Tanii and Nakai there are nine important executives who were born in the Showa era [since 1926]. Because they were appointed to executive positions by President Yamashita and because of their ages

as well, most of these men did not have the chance to train under Konosuke Matsushita directly. There are 21 men, including these 9, who were appointed to executive positions by President Yamashita. With these appointments, the Yamashita organization, which aims at becoming a comprehensive electronics manufacturer, is about 80 percent complete.

The youngest executive is Shunji Sakuma who was born in 1931. He works under Vice President Tanii in the "Action '86" campaign. This past November he became the head of the Home Appliance Business Headquarters after being in charge of the strategic Economic Planning Department. He is very intelligent and one of the people likely to sustain Matsushita Electric in the future.

Keiichi Takahata must be characterized as being a bit odd. He is known as another one of Matsushita Electric's "capable men." He joined the management group 6 months after he quit as chairman of the Trade Union Commission. The appointment appeared to be a reward for the successes during his 20-year tenure as Trade Union Commission chairman. After serving as Konosuke Matsushita's assistant, he is now eagerly working as the head of the Service Headquarters.

Possibility Of "Third-Generation Matsushita" Restoration

On the one hand, there have been the above-mentioned series of changes in personnel. What cannot be ignored, on the other hand, however, is the presence of the Matsushita family in the company headed by Konosuke Matsushita. It is natural for both Director Counselor Konosuke Matsushita and Chairman Seiji Matsushita to want to have the third generation of the family, Masayuki Matsushita, follow in their footsteps.

Masayuki is Chairman Seiji Matsushita's eldest son. He was born in October 1945 and is now 38 years old. After graduating from the economics department of Keio University, he entered the company. Later he spent 1 year in America studying at the University of Pennsylvania. Masayuki then studied sales at Matsushita America.

Upon his return to Japan in 1972, he went to Matsushita Judenshi. He returned to America once again in 1976 as deputy chief of Matsushita's Special Merchandise Division. Masayuki returned to Japan in June 1978 to become president of Matsushita Product Distribution Warehouse Company. In November of the following year he became the head of the parent company's Washing Machine Division.

The Matsushita Product Distribution Warehouse Company is the sole company in charge of distribution in the Matsushita group. Although it is a subsidiary, Masayuki as its head received training as a president for 3 years and 4 months. In addition to this, he was the head of a parent company division.

When Masayuki returned to the parent company after his stint as president of the Warehouse Company, it was rumored that he would be given a director's position, but President Yamashita decided that he was "still young. Gaining experience is the important thing right now and there is no reason to be in too much of a hurry. Once he has thoroughly learned about manufacturing and selling in a division, which is the starting point of Matsushita business, it will not be too late." As a division head he is a top executive who is, at this time, still being groomed for the top spot.

President Yamashita's attitude toward Masayuki is noncommittal. "I do not feel like I am grooming him. Circumstances being what they are, he will be given a chance, but after that it is up to him." With over 3 trillion yen in combined assets, Matsushita Electric Company is a mammoth enterprise. Which does not mean that just because he is the founder's grandson he should be put at the top of it.

But by putting Director Tadao Suzuki in charge of watching over Masayuki for example, President Yamashita does show a desire to groom the third-generation Matsushita [to take over the presidency], contrary to whatever he may say publicly.

The washing machine market is one of the mature markets in Japan. Competition in this market became heated, however, when Hitachi introduced its hit model, Karamanbo. Masayuki countered this this spring with a new-type washing machine, "Aisaigo," which is succeeding in increasing Matsushita's share of the market.

This made the old guard very happy and earned a "passing grade" for Masayuki. But they also figure that he will "be appointed director at 40 or so and executive director after 45." This means that the president's baton will be passed to the third-generation Matsushita after Tanii.

There is the strong possibility that leadership of the company will be "restored" to a Matsushita, but because the Matsushita personnel policy stands on the principle of ability and performance, "succession" is not guaranteed.

During his 16 years as president, the second-generation Matsushita, Chairman Seiji Matsushita, established the basis for an overseas strategy. He became president in 1961 when he was 48 years old.

Konosuke Matsushita himself says that for Masayuki the president's position is "10 years away. Once he has become involved in 1 or 2 divisions and really experiences the trials and tribulations of manufacturing and selling things, it will not be too late." Viewed in this way, Masayuki's "accession" would take place in his latter forties once he has sufficiently gone through the business wars.

But ultimately the matter of appointing Masayuki depends upon the wishes of Konosuke Matsushita, the "god of business." Konosuke, who by his own admission would like to continue on in his present role until the end of his life, will be 89 years old this November. Although he has had a long life blessed by good health, it is finite. Only God knows if he will be alive 10 years from now. If Masayuki is popular, there will be no problem with him becoming president. But if the appointment is based solely upon sentiment, the long history of Matsushita Electric personnel policy would have to be greatly altered.

The giant IMB, with which Matsushita is negotiating tie-up terms, fell into a business crisis due to a problem with succession. The old guard around Konosuke Matsushita are seriously studying cases such as this and Toyota, for example, but ultimately in the Japanese business climate, capital and business logic are more easily said than done.

In any event, the executive make-up of Matsushita Electric is shifting steadily from clerks to technocrats. Although the old guard, who suffered along with Konosuke Matsushita since the time of his personal shop, are still present, it can be said that Yamashita's goal with regard to personnel has been more or less achieved. It has also been his conscious effort to get away from people cut from the same cloth in order to have an active work force that can respond to the diversity of this age. How Matsushita Electric, whose objective is to become a comprehensive electronics manufacturer, will look in the future depends greatly upon President Yamashita and his people.

Finishing "Yamashita's Revolution," The "Action '86" Campaign [This section by economics journalist Katsuo Yamamoto]

The electric machinery industry seems to be enjoying the growth of products that are in tune with the age. But the rate of growth varies widely depending upon the area. For example, when one looks at the details of the business results for the three all-around electric machinery companies Hitachi, Toshiba, and Mitsubishi, one notes that the highest rate of growth is in the field of electronics, such as semiconductors, computers, and communications equipment. For the past 2 or 3 years the area of heavy electric machinery has been in a state that can be described as a structural recession because the demand for electrical power has not increased. Except for VTR's, home appliances have shown only a single-digit rate of growth as well.

Quite naturally this harsh environment of change is also bearing down upon Matsushita Electric whose kingdom is in home appliances. However, Matsushita and Hitachi, which are ranked first and fourth in VTR's, continue to maintain a firm grip on the market. In addition, 1983 fiscal year calculations forecast double-digit rates of increase for both sales and profits. Although Matsushita Electric's prosperity is being sustained by the growth of VTR's, that will not continue for very long. Like air conditioners, it is expected that demand will drop off in 2 or 3 years. Despite the large quantity of VTR's being produced, the profit rate is not increasing even now.

Matsushita Electric, which is famous for being able to read the changes of the age like Hitachi, has used such situations as a springboard for growth.

Therefore, every time he has the chance President Yamashita will say things like, "Matsushita is also in danger now," or "We cannot be unconcerned just because we are a big company," or "Success in one thing shackles our feet and hands and weakens our will for new challenges," in order to arouse in the employees a sense of crisis. That is, it is a psychological ploy to stir up a desire to challenge new areas.

OA and new media were fixed as the two pillars of the new area in early 1983. Focusing on these two, the company will broaden its base for moving into FA, HA, and LA [factory, home and laboratory automation]. By doing this, Matsushita hopes to develop a way that will take it from the 1990's to the 21st century, from a home appliance maker to a comprehensive electronics manufacturer.

The companywide movement "Action '86" was launched with this goal in mind. Since it extends from the parent company to the subsidiaries and overseas, it is also a movement that will put the finishing touches on the "Yamashita revolution" which began in 1977. The period from May 1983 to early June was a time for warming up and establishing goals. The movement itself is expected to run from November 1983 to November 1986.

The main in charge of carrying this out is Vice President Teruo Tanii, who is favored to succeed Yamashita. He is a very capable man who made Matsushita's VTR's number one in the world. His assistant is Director Shunji Sakuma, who is very bright and highly regarded. Matsushita will take a scalpel and operate upon the "sacred" division system and build a new organizational foundation by investing its resources of people, money, and equipment in electronics--mainly semiconductors and computers. Matsushita's aim is to be recognized as a rival to Hitachi, Fujitsu, and NEC when the movement is over in 1986.

The Matsushita division system has been based upon the principle of producing one article per division, but OA, new media, FA, and HA constitute an area which is made up of a combination of semiconductors, computer communications, and software. Because each of the 38 divisions is mainly concerned with the production of a single item, it is thought that the division system will not be able to cope in this age of complex items. For this reason, the Radio Division and Recording Equipment Division, two famous divisions in existence since the introduction of the division system in 1933, were combined to form the new General Audio Division. Both divisions are at odds with each other over the production of radio cassettes. OA equipment stretches over 7 divisions, so the territorial disputes will become even more heated. The division head is the lord of his domain, but they are strictly evaluated and ranked A,B,C, and D according to their profit ratio. They are replaced if they cannot improve their results for several years. If the results are poor, there are no excuses. "It is expected that they do the best that they can" (Konosuke Matsushita)

During the period of high growth, the division system displayed an aggressive, offensive style of business power. During the period of low growth, however, the self-supporting accounting system became a restraint and the passive, defensive aspect of the division system was revealed. The division system has the merit of being able to attack and distribute risk throughout the company. But when it falls into narrow sectionalism, such as territorial fights for example, strategic unity and coordination as a group becomes difficult. This is one of the division system's weak points because efficiency is subsequently reduced and new investment and growth is prevented.

Furthermore, elements of the technology that are essential for producing complex products in this age of combined technology are common to all the divisions. But since they are so widely scattered between the divisions, Matsushita has not been able to display the effectiveness of its favorite mass production techniques in this area. In areas where the market is small and demand is not expected to increase very much, business efficiency can be improved through divisional integration. Integration also aims at making even mature products profitable. Quite naturally integration would create a surplus of employees, but the plan is to relocate these people in the new semiconductor and computer fields. This would be exactly what Hitachi did when it took people and money from the depressed heavy electric area and placed them in the areas with the potential for high growth--semiconductors and computer. Probably because it is afraid of being ignored by the electric power companies, Hitachi does not publicly acknowledge this strategy, but it is boldly rearranging its areas of operation. Similarly, Mitsubishi combined its Heavy Equipment Headquarters and Machinery Headquarters in October 1983 to form the Electric Machinery Headquarters.

The heavy electric equipment section of another all-around electronics manufacturer, Toshiba, is rated very highly in industrial circles, so it is not going as far with strategic conversion as Hitachi and Mitsubishi. These comprehensive electronics makers have shifted their weight to the same areas and there the might of the mammoth companies will collide head on. It is predicted that it will be difficult for the market to adjust in such a way that all of these companies can be accommodated.

In any event, Matsushita's "Action '86" movement puts into practice the "philosophy of Yamashita." It has an offensive aim, to move aggressively into the computer field, and a defensive aim, to maintain profitability in a mature home appliance area through efficiency. Disregarding the defensive aspect for the moment, there is some doubt as to whether the offensive aim can be carried out as planned.

"Minicshita" Business Practices not Applicable in Semiconductors and Computers

The standard bearers in electronics are semiconductors and computers. One must also add communications technology in this age of information network systems [INS]. The development of this trinity is necessary.

Although Matsushita is ranked fifth in sales of semiconductors, most are for public and household use. Its Achilles' heel is that under 20 percent of its sales are for use in high technology industries. Matsushita is working on a 64K bit and is working in the area of VLSI memory as well; it plans to makret a 256K bit in mid-1984. It also has 4-bit and 16-bit microcomputers. But Matsushita is quite a distance behind the top makers NEC, Nitachi, and Fujitsu. Besides spurring on development, such as the development of circuit technology at its Information Logic Research Institute, Matsushita is trying to catch up to the various advanced companies through aggressive investment. Without a doubt the effort is being made. The top makers are not standing still either, however, and the tempo of technological innovation is very fast. In 1983 it was a seller's market due to the overall shortage of semiconductors. Thanks also go to the fact that the friction between the United States and Japan over semiconductors was, for the time being, cleared up. However, once supply exceeds demand, prices will drop dramatically. About 5 years ago, over a period of 2 years, prices fell by only 10 percent. But 2 or 3 years ago the price of a semiconductor dropped to less than one-tenth its original price in just 1 year. Semiconductors are such as extremely risky commodity that the braintrust of a manufacturer must agonize over the timing of their investments. It is not just a simple matter of spending money and becoming stronger. In addition to becoming cheaper, the lifecycle of a semiconductor is very short. It is said that the semiconductor is a product to which the "Matsushita way of doing business by copying" will not apply.

Rather than being the first to do something oneself, there is less danger in coming later and chasing after a product that has been developed by someone else. On the subject of the so-called "Mimicshita" way of doing business by copying, President Yamashita says: "If it is a produce that can be easily copied, I think the word copycat applies. That is, a product that can be easily manufactured by a copycat is a product without much originality. Before when there was no difference in the quality of products, victory was won by the better seller. Today no matter how strong a company's marketing network is, he is not strong without quality products. All of which makes a strong case for technology." Up till now, therefore, the copycat way of doing business was a rational business strategy.

It is not true that the Matsushita Electric Company has come this far by ignoring technology. Since its founding, Konosuke Matsushita and his successors have been almost greedily preoccupied with technology, technology, and more technology in the development of products. "Mimicshita" is an envious term used by other companies against an almost too dominant marketing power. Although one may not be in the lead, one must have the legs to catch and pass the leader. Technology and marketing capabilities are a company's legs. The top spot cannot be attained without both.

When he is responding to questions, therefore, President Yamashita merely shrugs off the insulting notion, no matter how misguided it may be, that Matsushita Electric Company did copycat business in the past and states that he fully recognizes the importance of technology.

"MSX," Matsushita's Touchstone for the Future

In addition to semiconductors, another crucial area for Matsushita in becoming the "new Matsushita" is computers. It is not clear whether Matsushita intends to move up just to the manufacture of personal computers or all the way up to large general purpose machines, but it will be fairly difficult for Matsushita to get to the top of even the personal computer market.

Teaming with America's number one manufacturer of software for personal computers, Microsoft, Matsushita Electric initiated the development and production of a standardized home personal computer, MSX.

Up till now personal computers have been inconvenient for users because each company's machine uses different software. That is, company A's hardware does not work with company B's software. Although most of the basic software logic is manufactured by Microsoft, subtle differences have eliminated interchangeability. This has not only been user unfriendly, but it has led to big losses for the makers themselves. That is, a maker will market a machine, but for that machine to become popular specific software must be developed by a software company, the so-called third party. The more software that is developed, the greater the machine's usefulness and the greater its market share. But with hardware makers competing individually among themselves, the development of usable software becomes less of a factor.

Standardization is the idea which contravenes the normal procedure of the computer industry. And this is the idea behind the MSX. It would cost too much money for the late-starting Matsushita to become involved in the entire process of personal computer manufacturing, from hardware to software, and furthermore it is not certain whether such an investment would even pay off in the end. Matsushita's idea appealed to all the various home appliance makers who wanted to get into the field of personal computers, but were hesitant. It is like one not being afraid to cross against a red light as long as everyone crosses together. It was a good tactic. The idea was that since everyone would be on the same technological level as far as personal computers were concerned, the company with marketing power would succeed. Furthermore, the third party software companies would be able to relax and concentrate on development because the hardware standard would be the same. There is a weak point, however. The products are basically the same, so it is hard to differentiate between them. Furthermore, the prices are very competitive, around 50,000 yen. For most of the companies it is a matter of depending upon mass production and marketing capability in order to succeed.

It is predicted that Matsushita, Sony, Sanyo, and Hitachi will form the top group in production of the MSX, but it is feared that because close to 20 companies will get in to the market, excessive competition will lead to a price war. Therefore, the top companies like Matsushita will try to make money off personal computer-related products, such as Braun tubes, floppy disks, etc. The aim is to get a foothold in the personal computer field while they learn unfamiliar personal computer technology and marketing expertise.

There are those, however, who think that the plan of the maker of various home appliances will not go as easily as they think. Publicly the top maker, NEC, approves of the plan, but it is seriously considering counter-measures. That company is having a bitter experience with users hesitating to buy its personal computers because of the MSX idea. NEC will probably now unleash its real power, however. Fujitsu, which has feigned disinterest up till now, has shaken the top home appliance makers with the introduction of a cheap computer with a high-quality keyboard for 49,800 yen. This is the mark of a company whose strength lies in semiconductor and computer technologies.

But Matsushita Electric has a different aim in mind by selling the MSX: the reeducation of its selling agents. That is, in order to gain marketing capability in tune with the age of OA and new media, it is necessary to transplant the knowledge of digital technology and digital products, beginning with computers. Matsushita must reeducate its selling agents, which have been selling refrigerators, color TV's, and VTR's up till now, but it will not be easy to teach them the jargon, like BASIC and OS for example. The company's plan is to let them enjoy selling the easiest game-oriented personal computers first and then gradually proceed with the up-to-date technological instruction. This is the so-called "intellectual make-over" of the 26,000-store string of national selling agents. It is probably no exaggeration to say that if the fundamentally strong selling agents are not galvanized for the state-of-the-art products, Matsushita itself will collapse as a matter of course. The MSX is Matsushita's test case whether everything goes according to plan or not.

Tie-Up With IBM, "Lucky" Or "Unlucky"?

The reason why Matsushita has had to start with the MSX as a foothold in the computer area is because of its withdrawal from the field in 1964. The reason for the withdrawal was that computers require a lot of capital and it is difficult to get a return on investment over the short term. On that score the judgment can only be regarded as having been excellent. In fact, the country was in a recession in 1965 and Matsushita pulled out of it quicker than most companies and accelerated its rate of growth. But NEC president at that time, Koji Kobayashi, said: "I do not understand their pullout. Sure things are difficult now," but he predicted that computers "will definitely develop into a huge business in the future." This is a good example of not being able to understand history until after a certain period of time has elapsed. In any event, Kobayashi read the situation correctly.

Of course Matsushita Electric did not just pull out of computers without careful consideration. It left minicomputers and peripheral equipment with Matsushita Communications so that the company would be able to reenter the field at some time in the future when it was necessary. This could be compared to the strategy of having one's strongest unit to protect the army when it is retreating. A pullout, however, is a defeat just the same. Without working on computers themselves, technology, like that needed for peripheral equipment for example, is not fostered. The same is true for minicomputers as well. Matsushita tried to arrange a hook-up with the world's largest manufacturer of minicomputers, DEC, but it did not pan out.

As a result Matsushita merged with Fujitsu in July 1973 and set up the "Panafacom" Company. Matsushita figured it would somehow absorb computer and digital technology from Fujitsu. For Fujitsu as well, the merger had much to offer. Up till then most of its customers had been small businesses and Fujitsu figured it would be able to get connected to Japan's most prominent companies through Matsushita. Fujitsu's expectations were met, but not Matsushita's. The technology was not absorbed as hoped. It was said that Konosuke Matsushita worried about the situation and urged his subordinates on. About 7 years after the merger, there were those who thought that the joint company "should be dissolved" because the initial goals would not be attained.

"Panafacom" continued thereafter, however, and in September 1983 the "FM Information System," which planned to develop software, was established by both companies and the existing bonds were strengthened. It was like a husband and wife who get back together after a bout with the 7-year itch. But the cause could also be attributed to the appearance of another "attractive offer." In the latter half of 1981, IBM Japan came to Matsushita with the idea of a merger. Negotiations are still going on today, but no settlement has been reached yet.

IBM Japan's aim is to acquire Matsushita's mass production and marketing capabilities because it is beginning to target its computers for the household market. There would also be the advantage of being able to replace Matsushita computers, produced in the partnership with Fujitsu, with IBM machines. On the other hand, if Matsushita were to shake on an agreement with the world's giant computer manufacturer, Matsushita would be able to obtain its technology and know-how and effectively use its idle plants. It would also do much to curb Fujitsu's complaints.

At any rate, to get together with IBM Japan while in partnership with Fujitsu would lack "integrity." So IBM's main office replaced IBM Japan in the negotiations. The feeling was that public opinion would recognize the propriety of a Matsushita tie-up with Fujitsu at home and IBM abroad.

The rationalist President Yamashita was not concerned about tie-ups with both Fujitsu and IBM. He stated quite frankly that "if they are necessary in this age of internationalization, the tie-ups are appropriate." It seems that Konosuke Matsushita and those close to him, however, were concerned about "integrity." But IBM Japan is tempting Matsushita with production of the multistation "5550." There is also talk about the possibility of consigning production of the "PC Junior" to Matsushita as well. As the personal computer favored to win the home market, its preproduction popularity is quite high. But insiders say that because the price for orders is quite harsh, Matsushita is dragging its feet. There is also the notion that the "king" would also be laboring as a "subcontractor."

IBM chairman Opel, who came to Japan for a meeting of the entire IBM board of directors at the end of October, announced at a press conference that "a decision (on the joint company question) is imminent." It seems that the time when Matsushita is going to hand down its final decision is drawing near. Determining whether an agreement with IBM, which had ensnared Hitachi in the spy incident, will be "lucky" or "unlucky," is very difficult to determine. Matsushita's main weapon is its mass production technology that is the best in the world, but if it slips up, the big shot will come to grief.

In Matsushita's tie-up with Phillips, a role reversal took place and Matsushita became the prominent company because of its dramatic rate of growth between 1955 and 1970. But with the large overseas companies cautiously guarding against this, there is some doubt as to whether such an international strategy could work again.

Furthermore, competition is several times tougher than before because of the low rate of growth worldwide. In today's information-oriented society, a company's costs for systems development and research development can get carried to enormous proportions if it is not careful. Furthermore, it is said that we are entering an age when every market will have a number one, and after that everyone from number two on down will be nonexistent. This will happen not only in the electronics industry, but will extend to almost every kind of business, financial and commercial.

More than anyone else Matsushita itself recognizes both its weaknesses and strengths under the present circumstances. Therefore, "Action '86" is perhaps Matsushita's tragic alias as it heads toward the 21st century.

The images of Hitachi and Fujitsu have suffered because of the IBM spy incident. But both companies have foreseen the coming of the computer and communications era since 1975 and they have staked the fate of their companies on it. If they continue on a course of autonomously developed technology, various paths will open to them and their images will recover as a matter of course.

But for Matsushita Electric, which pulled back from the computer field because of the large amount of capital needed and the predicted severity of the competition, and which concentrated on its favorite area of home appliances, the future will be a time of trials and tests because the growth rate for home appliances has leveled off.

Why Matsushita's Popularity Among Science And Engineering Students Is Lacking

As Matsushita sees it, the Sharp Corporation has paid it little heed, has been gradually transforming itself from a home appliance maker into an electronics manufacturer, and is establishing a high-income structure in semiconductors and personal computers. Instead of having an exhibit at the World's Fair [not specified], Sharp built a research and development institute and a factory in Tenri, Nara Prefecture and has been promoting the development of electronics technology. It is an impressive goal in terms of using capital effectively. But more than that both President Akira Saeki and Vice President Tadashi Sasaki are highly regarded for their ability to foresee the needs of the coming age. As before Sharp will not participate in the 1985 Science Exposition, but will establish a research institute in Kashiwa City, Chiba Prefecture where it intends to work on the development of biotechnology-based new semiconductors. This is a move that shows its desire to stay in the technological forefront.

On the other hand, what about Matsushita? Since he first assumed the post of president, Yamashita has known that technology alone is the basis for the company's existence in the future. Taking over as chief of the technology headquarters, he has been issuing written appeals to all concerned. Excellent goods, such as vacuum evaporation tape and materials, are being produced, but software and systems technology are still in the future and many difficulties lie in the way. One does not have to look at the Hitachi IBM spy incident to know perfectly well that software development requires much time and money. There are no shortcuts. One must gather the people and capital. Money is not a problem for a company as superior as Matsushita. It is a matter of whether the right people can be acquired. Right now NEC is the most popular company among science and engineering students. Hitachi may be stronger in terms of overall capability, but it is behind NEC in popularity. The difference lies in whether the company has a home appliance division or not. That is, students will select NEC because there is the fear that they might be placed in the home appliance division if they go to Hitachi. Matsushita has consistently been ranked number five in terms of science and engineering student popularity. This is not such a bad ranking, but, as the example of NEC and Hitachi reveals, a company that does not work in advanced fields will not be favored by students. And such a tendency would surely have consequences.

President Reagan laments the lack of science and engineering students in America. From the beginning the tendency has been to put the emphasis on numerical strength, but in the upcoming technology wars a company's existence

will be directly affected by both the quantity and quality of people it can obtain. Of course, a copycat way of doing business and the reform-oriented technology that sustains it will become less applicable in this age.

General Electric, which lost to IBM in the computer war, is trying to radically change its course. Chairman Welch indicates his company's policy: "Using the computer as a tool is fine. Using this tool, we will take the lead in areas that others cannot imitate." GE will be investing enormous amounts of money in the area of graphics over the next 10 years or so. Graphics will be a powerful tool in developing new materials and products for both military and public uses. Because it feels this will become such a promising market, GE is targeting its development efforts for the late 1980's and early 1990's.

This is the kind of dynamic strategic development that is typical of a huge U.S. company. What are the prospects for the areas in which Matsushita is involved? In both the OA, and now media areas, excessive competition will be absolutely unavoidable because the computers, communications, comprehensive electric machinery, and office equipment manufacturers are all jostling for position in the market. OA is out of the conceptual stage and about to enter the period of market formation. But new media is still just in the vague blueprint stage. Even if a manufacturer creates some demand, profitability will still be meager and the business risky. Despite that, however, investment will become increasingly more important.

International Strategy Displays Matsushita's Overall Strength

Matsushita's international strategy is to flex its overall strength. Its first step overseas after the war was to set up the marketing company Matsushita America (1959), but its earliest overseas production venture came about 2 years later with a merger with a Thai company. In the early 1970's Matsushita started to turn from mergers toward 100-percent financing. The purpose was not only to satisfy the domestic demand of the partner country, but to export to the neighboring advanced nations, including Japan. When moving into developing countries, Matsushita would begin with the production of dry batteries first. This is a conventional step. It is thought that a company cannot expand the market for other products without first ensuring a source of electricity.

In the late 1970's the pace of the export-oriented moves into advanced countries picked up in order to avoid aggravating international trade frictions. Matsushita's aggressiveness stands out in bold contrast to Toyota, which is this country's typical big company. For example, in 1974 Matsushita took over Quasar, the color TV division of Motorola which was struggling due to the business slump in America at that time. This was Matsushita's first production base in the world's largest market. Furthermore, as a large-scale business takeover, it was big news. Matsushita felt it would be cheaper to take over an established company than to build a new factory, but the facilities were too old. There were a host

of unfavorable conditions, like low morale among the workers for example, and it took some time to rebuild Quasar after the takeover. It finally turned a profit 2 years ago. One reason for this may have been the lack of background investigation, but it is also true that various problems accompany the production of high-priced commodities, such as color TV's and microwave ovens, in an advanced country like the United States.

A lot of effort in the area of production control was needed in order to bring the products up to the domestic quality standard. The introduction of automation to rationalize production was neither welcomed by the local authorities nor labor unions because of its effect upon area employment. A lot of very strenuous efforts had to be made in order to approach the Japanese level of productivity. In Matsushita's case, therefore, a long-term effort was required to get things on the right track.

The first thing President Yamashita did when he assumed office in 1977 was reorganize the overseas company foundation.

Because it took so long for Quasar to get back on its feet in America, a review was made of the company's structure, including that of Matsushita America. As a result of this review, Matsushita Electric was reorganized into three divisions, Panasonic Company, Quasar Company, and Matsushita Electric Company. The first two are both marketing companies and the latter one is in charge of manufacturing.

Next year will be the 25th anniversary of Matsushita America's founding and on the principal strength of VTR sales, business results for the first half of fiscal year 1983 are up over the same period for the previous year by a double-digit rate of increase. Income will be more than expected as well. In early 1982, the industrial division, Panasonic Industrial Company, was established. The favorable business results are due to this. Both the marketing and manufacturing arms of the company have been striving diligently to attain the targeted production control level and as a result Matsushita Electric is ready to top the previous rate of growth and enter a new age of prosperity. President Keiichi Takeoka proudly points out that "this year's sales will certainly hit the \$2.5 billion mark."

In Southeast Asia the quality of work is high and the number of companies moving into Singapore, which has been encouraging investment from abroad, is remarkable. In addition to the 1972 establishment of Matsushita Reiki Company of Singapore, which produces refrigerator compressors, five companies were subsequently established in Singapore between 1977 and 1978. They are Matsushita Wireless Equipment Company of Singapore, Matsushita Precision Motor Manufacturing Company of Singapore, Matsushita Electronic Parts Company of Singapore, Matsushita Electronics Company of Singapore, and Matsushita Technical Center of Singapore. All five were established for the purpose of exporting, especially the company which produces the compressors used in refrigerators. Its facilities are being upgraded

annually with the aim of exporting to Japan. The characteristic of each company in the Matsushita group, such as Reiki, Matsushita Kyushu, and Matsushita Tlectronic Parts, is the upgrading of its technological capability.

With respect to Europe, Matsushita established new companies in Belgium in 1970 (dry batteries), in Spain in 1973 (vacuum cleaners, industrial-use heating and cooling equipment), and in England in 1974 (color TV's). It merged with the West German company, Bosch, to form "MB Video" (Matsushita 65 percent) in order to counteract the international trade controversy over VTR's. Matsushita's plan is to use these companies as bases for supplying the European community with the various commodities.

The marketing companies, which total 34, are very proud of their range of products. Matsushita is also Japan's biggest international manufacturing company in terms of overseas investment. Two years ago the Matsushita group topped the 1 trillion yen mark in exports. That is nothing for an all-around trading company, but one does not see such performance from companies whose production is restricted to a single area, like home appliances.

By promoting marketing and manufacturing integration, Matsushita will be developing an even more diverse overseas strategy for the future. One of the strategies is to tie-up and cooperate with powerful overseas companies.

President Yamashita emphasizes the importance of having a good partner relationships: "There is a limit to the strength of Matsushita Electric, so, whether we like it or not, mergers with other companies are necessary. And a relationship in which Matsushita alone profits will not last long."

In the past Matsushita has not been enthusiastic about supplying merchandise with its partner's brand name (OEM [original equipment manufacturer]) because, quite naturally, it wanted to preserve the high added value of its own mark. Lately, however, Matsushita has not been concerned. It is supplying its rival, RCA, with VTR's and GE with the components for microwave ovens.

The competition has become fierce. One reason for not sticking with the idea of keeping its own brand name is that Matsushita cannot coordinate quantity and exercise its strength in mass production technology if it does so. Another reason is that Matsushita is following the spirit of "coexistence and mutual prosperity," that is, help wherever you can help, even if it is a rival company.

In the same vein, if Matsushita provides more foreign companies with production technology and business know-how, thenumber of companies which actually come under the "Matsushita umbrella" will increase through the so-called "transfer of technology."

Among the related companies, 12 are listed on the stock exchange: 9 in the first division and 3 in the second. Most of these are excellent firms not inferior to the parent company Matsushita Electric.

In addition to Matsushita Electric there are currently 83 associated companies, 79 at home and 4 abroad. In fiscal year 1982 combined sales were 3,649,000,000 yen and overall profits totaled 157.1 billion yen. In fiscal year 1983 sales are expected to rise by 5 percent to 3,846,600,000 yen and overall profits by 6.7 percent to 167.7 billion yen. The strength of the Matsushita group is clearly apparent when one notes that the consolidated 4.3 percent rate of increase in profits for 1982 exceeds the independent 3.9 percent rate of increase for Matsushita Electric.

The related companies of Matsushita Electric can be generally divided into three groups. The first group is comprised of the production divisions of Matsushita Electric and those companies newly established for work on new objectives. The second group is made up of the traditional subcontracting firms and suppliers who were reorganized and incorporated into the group. Third are those companies who were in trouble and incorporated into the group at their own request. Of course, this high-powered overseas strategy is in line with the basic business theory of Konosuke Matsushita as well.

In any event, during the next 3 years Matsushita Electric will be trying to review and transform all the aspects of its business organization, such as its technological development, the operation of its division system, its overseas strategy, and its marketing structure, and get away from its image as "home appliance Matsushita." Then at that time it will have been transformed from the original "Matsushita shop" of the "god of business" into an all-around electronics manufacturer in both name and reality. Much depends upon how far the "big revolution" of "Action '86" can go. It is thought that 1986, when this mid-term plan is scheduled to end, will be the time when President Yamashita passes the baton to his successor, but many people, at home and abroad, are more interested in how the Matsushita group will flex its home appliance-based overall strength during the transition.

Matsushita's Strength Is Its Related Companies' Strength
[This section by journalist Ikutoshi Takano]

The Matsushita group is a mammoth group comprised of 446 firms, 368 domestic and 78 overseas, with the Matsushita Electric Industrial Company at its center.

The divisions of Matsushita Electric that constitute companies are called branch companies. There are eight in all: Matsushita Electric Works, Matsushita Electronics, Matsushita Communications, Matsushita Electronic Parts, Matsushita Industrial Machinery, Matsushita Battery, Matsushita Air Conditioning, and Matsushita Technical Research Center. The employees of these eight are hired as Matsushita Electric personnel and then placed by the company. They receive the same treatment as Matsushita Electric employees.

Matsushita Seiko [Precision Manufacturing] and Matsushita Reiki [Cooling Machinery] are examples of the second type, reorganized subcontractors or suppliers. Finally, Victor Company of Japan and Miyata Industrial are examples of companies whose business slumped and were incorporated into the Matsushita group.

While following an autonomous path of operation, these related companies are tied to Matsushita Electric by the idea of coexistence and mutual prosperity. That is, while cooperating with each other, as a group they make up one of Japan's leading electronics manufacturers.

Let's look at some of the distinctive companies within the Matsushita group to try and find where its strength lies.

Matsushita Electric Works

This is the most powerful company in the Matsushita group. Its wiring apparatus holds an overwhelming share of that market. With 23.95 billion yen in capital and 12,900 employees, it is the largest of the related companies.

This company originally spun off from the Wiring Apparatus Division of Matsushita Electric and became an independent branch company in 1935. Because Matsushita Electric is a company that got its start from the manufacture of wiring apparatus, the employees are proud of the fact that "our company is the source of the Matsushita group." It would be more appropriate to call it a sister company rather than a subsidiary.

As an elder of the Matsushita group and Konosuke Matsushita's right-hand man, Chairman Seiji Tanba leads the Matsushita group overall.

Using the slogan "making homes in a new way," this company has been making progress in the area of housing since 1964. Today 40 percent of its sales are in housing-related goods, such as baths, toilets, doors, and building materials. It is the largest builder of complete homes in Japan.

Havint come this far as an integrated housing manufacturer, the company is trying to change directions radically. Because of the business slump during the past few years, the number of houses being built has steadily declined. For this reason, Matsushita Electric Works has been further strengthening its position in the home-renovation market. At the same time, it has seriously gotten into the area of FA and HA. In 1982 the company established the Equipment Development Research Institute in order to develop FA and HA equipment. The whole company is working in this area.

In the area of FA, the company is working on the production of systems for production control and factory environment control. In order to make the control components that support these systems intelligent, Matsushita Electric Works is investing much of its energy into developing intelligent control components and a production control system.

For HA, the company is making further progress in the combined area of "electro-construction" which it has developed up till now. At the present time, Matsushita Electric Works is putting a lot of effort into security-related equipment (burglar and fire alarm systems). In tandem with Matsushita Electric, this company will undoubtedly be a top company in the area of HA. Its future looks bright.

Victor Company of Japan

Among all the companies in the Matsushita group, Victor Company of Japan is the one that is most atypical. The VHS-format VTR, which accounts for almost 68 percent of the company's sales, was developed by Victor in 1976. Therefore, Victor contributes greatly to Matsushita's video equipment sales, which accounted for 28.4 percent of its 2,473,500,000 yen in total sales for 1982.

Without the VHS-format VTR, the world reknown Matsushita Electric Company would most likely be just an ordinary home appliance maker today. As a result of Victor's development of the VHS-format VTR and its efforts to popularize it together with the parent company, 80 percent of the VTR's are VHS-format.

Victor has been known for its technological capability for a long time. A former vice president, Kenjiro Koyanagi, was the first in the world to invent the Braun tube-model TV of today. He is respected throughout the world as the "father of TV." In 1940, he sold the first purely home-manufactured television in Japan.

In this sense, it would not be strange to call Managing Director Shizuo Takano the "father of video." He is known in Europe as "Mr Video."

Victor Company of Japan not only supplied France's Thomson-Brandt with video technology, it also merged with both West Germany's Telefunken and England's Sonh-EMI to form companies. It is, therefore, also involved in the on-site production of VHS-format VTR's.

This company is also cultivating the next-generation successful commodity by developing the VHD-format video disk. Home appliance makers have high hopes for it and expect it to succeed the VTR.

Victor employees have a lot of confidence in their company's technological capability, so the tendency for them to view Matsushita Electric as a competitive partner rather than the parent company is quite strong.

The current chairman, Kokichi Matsuno, is from Matsushita Electric, but the president, Ichiro Shindo is a company man. After Matsuno retires, it is thought that executives will no longer be sent from Matsushita Electric.

In order to make further progress beyond the VHS-format VTR and VDH video disk, Victor intends to become a comprehensive information equipment manufacturer by combining its video and information technologies and competing with Matsushita Electric in the same area.

Matsushita Electronics Industrial Company

At the end of December 1982 this company showed reduced income and profits for the first time. Sales were down 90 percent over the previous period of 202.3 billion yen and working profits were down 80 percent to 27.5 billion yen. The reason was that Braun tube exports were down, the demand for picture tubes was down, and the demand for discreet components in the semiconductor field, such as transistors, did not increase.

As the manufacturer of electron tubes, semiconductors, and Braun tubes, it is the second largest company in the Matsushita group behind Matsushita Electric Works in terms of capital.

The history of this company's beginning is a well-known story. It was established in a 1952 merger with the Dutch company, Phillips. Since all the stock was owned by the two companies, Matsushita 65 percent and Phillips 35 percent, the company was not listed on the stock exchange. Furthermore, all the employees came from Matsushita Electric.

It was after the war when the merger took place. Since Japan was a defeated nation, it was treated as a third-class country. Matsushita was forced into an insulting arrangement in which Phillips became a major stockholder by theoretically providing the company with 35 percent financing in the form of technical assistance money. In fact, Phillips did not spend one "sen."

The future of Matsushita Electronics is very promising, however. It is said that electronics will usher in the "second industrial revolution"; it is on the leading edge of the technological revolution of the age.

And Matsushita Electronics is situated right in the middle of the electronics area. It is for this reason that President Miyoshi says that Matsushita Electronics has grown to the point where "one cannot talk about Matsushita Electric without mentioning our name."

In order to develop the semiconductor industry further, in 1983, Matsushita Electronics had, for the first time since its inception, appropriated 35 billion yen for investment in facilities and equipment. Thirty billion yen of that amount is semiconductor-related.

The company is constructing a new 3-story 10,000-square meter plant next to its Arai VLSI office. It could be completed by next year at the earliest. Matsushita Electronics expects to get into LSI production--standard logic, microcomputers, and the digital memory area--during 1984.

Matsushita Electronic Parts Company

As the name indicates, this company manufactures and markets various types of electronic components. As the company in charge of producing mostly active components of semiconductors, it is also a competitive partner to Matsushita Electric Works.

It is a fairly young company having spun off from Matsushita's Components Division in 1976 to become a branch company. In this age of "ultralight, then, miniature" components, however, Matsushita Electronic Parts Company's production is not limited to just electronic equipment for common use. Because it is also making great strides in the systemization of electronic components for use in cars and industrial machinery, this is one of the promising companies within the Matsushita group. And much is expected of it.

It is often said of Matsushita Electric that it is a company whose forte is the manufacture of complete goods, from components on up.

Fifty percent of its electronic components go to the Matsushita group. With 30 percent going to other domestic manufacturers and 20 percent exported, a very high percentage of its supplies go to other makers. At the present time the percentage of its supplies going to the Matsushita group has dropped to about 40 percent, but the company is trying to raise this to 80 percent. One of the secrets for the continued success of Matsushita Electric is "Matsushita's strength in components."

In the summer of 1983, the company carried out the biggest reorganization of its system since its inception. It was the first step toward "creating an organization that can cope with the developments of the next generation" (President Kuninobu). Related goods were gathered and integrated into a headquarters and bold innovations were left to the next-generation managers. Specifically, a system of three headquarters was established: 1) the Structural Components Headquarters; 2) the Circuit Components Headquarters; and 3) the Systems Products Headquarters.

This company will adopt the time-honored division system of Matsushita Electric for its electronic components. Its aim is to become a second Matsushita Electric by delegating authority, which is typical of President Kuninobu.

Matsushita Graphic Communication Systems, Inc.

This company is proud of the fact that it has been the world's only exclusive manufacturer of facsimile equipment during its 50-year history.

This company is the offspring of the technical research institute of Dometelecommunication Inc. It would not be an exaggeration to say that the Matsushita Graphic Communication Systems, Inc has been at the center of Japan's information industry since the time it was still being used by the newspapers and government exclusively.

Since control of the company was transferred from Matsushita Electric in 1962, it has become the world's top maker of facsimile equipment under the administration of Chairman Yoshiro Omori and President Kino. Omori used the occasion of his 80th birthday this February to retire, however, and President Kino became chairman. Vice President Toshihachiro Yao, who dealt with ventilation fans for 10 years at Matsushita Seiko, became the new president.

The next target for Matsushita Graphic Communications Systems, Inc is to become the top maker of OA systems.

As soon as he took office, President Yao stated: "Today facsimile equipment transmits texts and pictures almost as fast as they are produced. Besides being used in this way in the future, the demand for them as OA systems equipment in a computer network will increase dramatically. For this reason, we want to get away from the image of facsimile machines as being designed just for the Graphic Communication System of facsimiles; they should be looked at more as the Graphic Communication System of OA systems."

This is the pillar of the Matsushita group's OA strategy and, as its linchpin, this company is playing a very important role in its execution.

Matsushita Transmission established an OA systems research institute in 1981. In addition to this, in early 1982 it created the OA Systems Division and unified the production, research, and business divisions.

The company will put a 3-year plan into effect in 1984. The goal is to reach 120 billion yen in sales by 1986. The entire company is hustling to attain this target.

By that time, 1986, Matsushita Transmission will next be getting into the HA field as well. Undoubtedly very close intragroup teamwork between Matsushita Transmission, Matsushita Electric Works, and Matsushita Electric will come into play for this.

Matsushita Electric Company Of Kyushu

The Matsushita group are planets of the Solar System with Matsushita Electric as the sun. The common brand name, marketing network that is spread throughout the world, and joint development in the research field receive the sun's rays and energy. Each of them revolves around Matsushita Electric like the planets around the sun.

Among the companies of the Matsushita group, Matsushita Kyushu has been firmly wedded to the business theory of Konosuke Matsushita and it has steadily grown to become the mini-Matsushita of Kyushu.

If Matsushita Judenshi below is Matsushita's headquarters in Shikoku, then this company can be called its headquarters in Kyushu. In 1955, requests came from influential quarters of the area that the idle

facilities of the Japan Rubber Company be used and Matsushita took this opportunity to establish a company there. In this sense the company's existence is very unique in comparison to the other subsidiaries of Matsushita Electric.

Matsushita Kyushu's history was one of successive difficulties.

It had 100 million yen in capital when it was founded and 12 young staff members were sent from the parent company to work on factory renovation. Due to continued investments, the accumulated red ink reached 300 million yen in 1959. Dividends were distributed for the first time in 1962.

The company was so constitutionally weak it was said that "in the past if Matsushita Electric sneezed, Matsushita Kyushu would catch cold!"

But in 1971, President Aonuma, who took a company that started with nothing and turned it into one of Kyushu's most prominent businesses with a zero debt, was praised by local people as being "the Konosuke Matsushita of Kyushu."

Matsushita Kyushu manufactures such a wide variety of products--from small color TV's, radios, and stereos up to electronic components--that it is called a mini-Matsushita. The company is especially proud of its magnetic head which is number one in the world.

The areas which Matsushita Kyushu will be emphasizing in the future are "mechatronics," such as magnetic heads and assembly robots, OA equipment, such as word processors, and information equipment focusing on telephone terminal equipment. Furthermore, it will be working on "aquatics" and health equipment, which attempts to use water effectively through electronics.

Matsushita Kyushu is a company that has firmly taken root in Kyushu as a thoroughly local industry. It is currently putting all its efforts into "strengthening its development system," for that future time when it will fly from Kyushu to the rest of the world.

Matsushita Judenshi Industrial Company

This company's income comes mainly from export-oriented VTR's, but one cannot talk about Matsushita Judenshi without mentioning its infrared kotatsu [portable feet warmers the size of a small card table].

The forerunner of Matsushita Judenshi is Kotobuki Electric Works which was founded by Judenshi's current president, Inai. President Inai himself established Kotobuki Electric Works in order to manufacture and market infrared kotatsus, but in 1969 it merged with the Matsushita Electric Company-related Kotobuki Denki [electric equipment] Company and Kotobuki Rokuonki [recording equipment] Company to form the present company.

Although Matsushita Electric currently owns 59.6 percent of Judenshi's stock, President Inai, who is the actual owner, has complete authority. The name [Kotobuki] Electric Works, therefore, signifies something quite different from what is meant by [Matsushita] Electric Works and it possesses a peculiar status within the Matsushita group.

Matsushita Judenshi independently manufactures the infrared kotatsu that President Inai developed in toto, from development to production. Matsushita Electric takes care of marketing only. Furthermore, Matsushita Judenshi divides production responsibilities with various Matsushita Electric divisions for the manufacture of small 13-inch and 16-inch color TV's for domestic use and export-oriented tape recorders and VTR's.

The export-oriented VTR's are this company's largest source of income. They are supplied by Judenshi as the OEM to GE, Magnavox, Sylvania, Panasonic of Matsushita America, and Quasar.

Because VTR sales were so strong, the figures for the fiscal year ending November 1983 were greatly revised upward. The sales figures were adjusted upward by 10 billion yen to 250 billion yen and the figures for profits after taxes were 10 billion yen, an upward revision of 800 million yen.

Matsushita Reiki Cooling Machinery Company

Among all the companies in the Matsushita group, this company is in charge of manufacturing those items that are most closely connected to everyday life: refrigerators, freezers, and air conditioners.

Because its main product, refrigerators, has a diffusion rate of almost 100 percent, the company is working on how to get people to switch to domestic products when it comes time to replace their current machine.

Domestic sales of refrigerators peaked in 1979 at 4.5 million units. In 1981 and 1982 this fell to 3.6 million units. Since this year is about the time when those people who purchased refrigerators in 1973 will be replacing them, Matsushita Reiki is expecting demand to run at 3.7 million units this year. Nevertheless, in contrast to something like VTR's for example, demand will tend to continue at present levels and inevitably business will be difficult.

Because of this, Matsushita Reiki has been trying to cut expenses by reducing material costs and inventory. At the same time, it has been cultivating the demand for new products by, for example, adding space to its 2-door model for a vegetable crisper and being the first to market a 3-door type refrigerator. It has also made the traditional white model more colorful, adding red, yellow, and blue colors.

As a result of these aggressive marketing tactics, refrigerator sales have been averaging an annual rate of increase of 5 percent, and for the first half of 1983 sales increased by 7 percent to just under 41.3 billion yen.

The majority of companies in the Matsushita group are working in the very promising field of electronics. But no matter which of this company's manufactures one looks at--refrigerators, compressors, or air conditioners--they are all mature commodities. At best, therefore, Matsushita Reiki cannot expect a very high rate of growth from now on.

This company's forerunner was Nakagawa Machinery Company which produced construction machinery, so this company is manufacturing highly efficient equipment such as automatic machinery and robot machines. By combining the precision component technology it possesses with work on the development of FA equipment, new paths leading to the company's survival will open.

Matsushita Seiko Precision Manufacturing Company

Similar to Matsushita Reiki, business has been difficult these past few years. This company is an all-around manufacturer and marketer of household fans, ventilation fans, and air conditioners. Sales peaked in 1980 at 85.5 billion yen and have been declining each year since then.

Due to the heat wave during the summer of 1983, the demand for fans and air conditioners recovered and the company had an increase in operating profits for the first time in 4 years. Nevertheless, as before the prospects for the future are not good.

Having already recognized the energy revolution, Matsushita Seiko has been first in putting solar houses to practical use in the industry and it has established a system to provide for their dissemination. The company has been further preparing for the future by developing Japan's largest propeller-type wind-driven power device for Nippon Telephone and Telegraph [NTT] and by providing Oshima Island with a radio relay station.

However, because it will take some time before solar houses become commonly used for residences, Matsushita is looking for [ways to speed up the distribution].

Matsushita Communications Industrial Company

This company spun off from Matsushita Electric's Communications Equipment Division in 1958 to become a branch company. It became a 100 billion yen company in 1978, the 20th anniversary of its establishment. By 1982 it had grown to the point where sales doubled to 220.68 billion yen.

Principal Related Companies of Matsushita Electric No 1

松下電器産業主要関連会社					No. 7	
1.	会社名(本社・資本金・設立・決算期)	2. 代 表 者	3. 役 員		4. 松下電器の持分比率	5. 主な事業内容
6.	松下電子工業 大阪府高槻市 21,000(百万円) 昭和27年12月10日 9,500(名)	(社)三由清二 7.	(会)松下正治 (副)藤本一夫 (常)伊田 信 (常)藤尾日丸 (取)原田 明 (取)渡邊宏男 (取)大藪俊三 (常監)佐伯廣志	(社)三由清二 (副)石橋太郎 (常)中西久延 (常)尾本久和 (取)蛭川親義 (取)山口靖彦 (取)小林義知 (監)樋野正二	(副)細越赫一郎 (常)上村眞也 (常)水野博之 (取)松下幸之助 (取)大橋孝造 (取)奥村富三郎 (取)西川幹雄	65% 管球・半導体、ブラウン管の製造販売。 9.
10.	松下通信工業 横浜市港北区 7,854 昭和33年1月17日 5,700	(社)小蒲秋定 11.	(会)松下正治 (専)丸尾元俣 (常)唐津 一 (取)山下俊彦 (取)外山和彦 (取)石沢英次 (常監)山田兼敏 (監)板倉庄二郎	(社)小蒲秋定 (専)田中 裕 (常)岸 卓 (取)浅田義雄 (取)都丸喜成 (取)吉山龍夫 (監)樋野正二	(専)黒岩幸衛 (常)河原 滋 (取)松下幸之助 (取)仲井光夫 (取)中尾 大 (取)吉田 実 (監)鶴田三雄	61.3% 情報・通信機器、計測・制御機器、音響・映像機器、事務機器の製造販売。 13.
14.	松下電子部品 大阪府門真市 12,550 昭和51年1月19日 10,000	(社)國信太郎 15.	(社)國信太郎 (専)中山逸平 (専)浅井昭次 (取)山下俊彦 (取)夫戸三都男 (取)磯野二郎 (監)樋野正二	(副)飯田義男 (専)末廣喜正 (常)市川勝美 (取)浅田義雄 (取)三船英雄 (取)青木忠夫 (監)鈴木 一	(副)小林文雄 (専)杉井 聰 (常)山本芳夫 (取)竹吉端男 (取)増山 勇 (常監)山本昌平	96.2% 各種電子部品の製造販売。 17.
18.	松下住設機器 奈良県大和郡山市 6,000 昭和52年1月17日 3,800	(社)小川守正 19.	(社)小川守正 (常)小關和助 (取)浅田義雄 (取)高木博男 (常監)板橋知義	(専)伊賀和夫 (取)松下正治 (取)上田和範 (取)齋藤 正 (監)樋野正二	(常)瀧口 融 (取)山下俊彦 (取)羽山 稔 (取)菊地 禮 (監)鈴木 一	100% 電子レンジ、暖房器、ソーラ、ガス機器、石油機器など住宅設備機器の製造販売。 21.
22.	松下産業機器 大阪府豊中市 3,000 昭和52年1月17日 1,300	(社)金澤二三男 23.	(社)金澤二三男 (常)滝本和夫 (取)早川 茂 (取)朝倉栄三 (監)鈴木 一	(常)山田 正 (取)松下正治 (取)宗本光義 (常監)大井章司	(常)檀上一馬 (取)浅田義雄 (取)神田卓明 (監)樋野正二	100% 各種産業機器の製造販売。 25.

Key:

1. Name of Company (Main Office . Capital . Established . Employees)
2. Representative
3. Executives
4. Percentage of Stock Held by Matsushita Electric
5. Principal Business
6. Matsushita Electronics Industrial Company
Takatsuki City, Osaka Prefecture
21 Billion Yen
10 December 1952
9,500 People
7. Seiji Miyoshi
8. Names from Left to Right. (C) = Chairman, (P) = President,
(VP) = Vice President, (E) = Executive Director, (M) = Managing
Director, (D) = Director, (PI) = Permanent Inspector, (I) = Inspector

(C) Seiji Matsushita (P)Seiji Miyoshi (VP)Kakuichiro Hosokoshi
(VP)Kazuo Fujimoto (VP) Taro Ishibashi (E) Shinya Uemura
(E)Shin Ida (E)Hisanobu Nakanishi (E)Hiroyuki Mizuno (E)Hinomaru
Fujio (E)Hisakazu Omoto (D)Konosuke Matsushita (D)Akira Harada
(D)Chikayoshi Ninagawa (D)Kozo Ohashi (D)Hiroo Watanabe (D)Yasuhiko
Yamaguchi (D)Tomisaburo Okumura (D)Shunzo Ooyabu (D)Yoshitomo
Kobayashi (D)Mikio Nishikawa (PI)Hiroshi Saeki (I)Seiji Hino
9. Manufacture and marketing of electron tubes, semiconductors, and
Braun tubes.
10. Matsushita Communications Industrial Company
Kohoku-ku, Yokohama City
7.854 Billion Yen
17 January 1958
5,700 People
11. Akisada Ogama
12. (C)Seiji Matsushita (P)Akisada Ogama (M)Koei Koroiwa (M)Mototatsu
Maruo (M)Hiroshi Tanaka (E)Shigeru Kawahara (E)Hajime Karatsu
(E)TakuKishi (D)Konosuke Matsushita (D)Toshihiko Yamashita
(D)Yoshio Asada (D)Mitsuo Nakai (D)Kazuhiko Sotoyama (D)Yoshinari
Miyakomaru (D)Hajime Nakao (D)Eiji Ishizawa (D)Tatsuo Yoshiyama
(D)Minoru Yoshida (PI)Kanetoshi Yamada (I)Seiji Hino (I)Mitsuo
Tsuruta (I)Shojiro Itakura
13. Manufacture and marketing of information and communications equipment,
instrumentation and control equipment, audio and video equipment,
office equipment.
14. Matsushita Electronic Parts Company
Kadoma City, Osaka Prefecture
12.55 Billion Yen
19 January 1976
10,000 People
15. Taro Kuninobu

16. (C)Taro Kuninobu (VP)Yoshio Iida (VP)Fumio Kobayashi
(M)Ippei Nakayama (M)Yoshimasa Suehiro (M)So Sugii
(M)Shoji Asai (E)Katsumi Ichikawa (E)Yoshio Yamamoto
(D)Toshihiko Yamashita (D)Yoshio Asada (D)Masao Takeyoshi
(D)Mitsuo Shishido (D)Hideo Mifune (D)Isamu Masuyama
(D)Jiro Isono (D)Tadao Aoki (PI)Shohei Yamamoto (I)Seiji
Hino (I)Hajime Suzuki
17. Manufacture and marketing of various types of electronic
components.
18. Matsushita Housing Machinery Company
Yamato-Koriyama City, Nara Prefecture
6 Billion Yen
17 January 1977
3,800 People
19. Morimasa Ogawa
20. (C)Morimasa Ogawa (M)Kazuo Iga (E)Toru Takiguchi
(E)Kazusuke Ozeki (D)Seiji Matsushita (D)Toshihiko Yamashita
(D)Yoshio Asada (D)Kazunori Ueda (D)Minoru Hayama
(D)Hiroo Takagi (D)Tadashi Saito (D)Rei Kikuchi
(PI)Tomoyoshi Itabashi (I)Seiji Hino (I)Hajime Suzuki
21. Manufacture and marketing of microwave ovens, heating
equipment, solar, gas, and oil apparatus
22. Matsushita Industrial Machinery Company
Toyonaka City, Osaka Prefecture
3 Billion Yen
17 January 1977
1,300 People
23. Fumio Kanazawa
24. (C)Fumio Kanazawa (E)Tadashi Yamada (E)Kazuma Danjo
(E)Kazuo Takimoto (D)Seiji Matsushita (D)Yoshio Asada
(D)Shigeru Hayakawa (D)Mitsuyoshi Munemoto (D)Takuaki Kanada
(D)Eizo Asakura (PI)Shoji Oi (I)Seiji Hino
(I)Hajime Suzuki
25. Manufacture and marketing of various types of industrial machinery.

Principal Related Companies of Matsushita Electric No 2

松下電器産業主要関連会社					No.2
1.	会社名(本社資本・設立・従業員)	代 表 者	3. 役 員	4. 松下電器の持分比率	5. 主な事業内容
6.	松下電池工業 大阪府守口市 10,500(百万円) 昭和54年1月16日 3,000(名)	(社)東 國徳 7.	(社)東 國徳 (専)舟橋正雄 (常)竹中秀夫 (常)倉田豊輝 (取)山下俊彦 (取)芳中 實 (取)中井美代次 (取)福岡幸司 (取)濱祐喜雄 (取)小川博通 (常監)浅野勇 (監)山本昌平 (監)鈴木 一 8.	95.4%	各種電池、電池使用機器の製造販売。 9.
10.	松下電器貿易 大阪市南区 5,412 昭和10年8月20日 1,300	(社)磯村久太郎 11.	(会)飯村正造 (社)磯村久太郎 (副)藤井孝澄 (専)坂口久一 (専)水谷隆夫 (常)三宅秀夫 (常)仲田嘉夫 (常)尾崎正一 (常)林 一 (常)豊田俊美 (取)松下正治 (取)山下俊彦 (取)藤尾英三 (取)岩崎正行 (取)丸田三郎 (取)関 淳 (取)巽富三郎 (取)鈴木孝壽 (取)小山昭一郎 (取)布施敏行 (取)井村昭彌 (相)高橋荒太郎 (常監)中村平男 (監)樋野正二 (監)舟木利三 12.	50.1%	貿易業。松下グループの輸出部門担当。 13.
14.	松下冷機 大阪府東大阪市 7,853 昭和14年2月12日 5,100	(社)青木節夫 15.	(会)中川懐春 (社)青木節夫 (常)藤原律雄 (常)山本 陽 (常)和泉 潔 (取)松下幸之助 (取)松下正治 (取)山下俊彦 (取)北浦靖之 (取)上田常顕 (取)紺谷俊雄 (取)正田公男 (取)の場武志 (取)滝野 孝 (常監)田村貞之 (監)樋野正二 (監)岡村治平 16.	50.5%	中川電機が社名を変更して松下冷機となる。冷蔵庫、空調機器、自販機を製造販売。 17.
18.	松下電工 大阪府門真市 23,952 昭和10年12月26日 12,600	(社)小林 郁 19.	(会)丹羽正治 (社)小林 郁 (副)藤井貞夫 (副)宮田喜八郎 (専)松本 順 (専)三好俊夫 (常)谷 七郎 (常)荒木田利八 (常)遠藤一郎 (常)宗政武郎 (常)大島 博 (取)松下正治 (取)西尾 稔 (取)北村正一 (取)御影光治 (取)大原安太郎 (取)山田吉一 (取)吉川文三 (取)神前好位 (取)丹野末廣 (相)松下幸之助 (常監)長谷利勝 (監)門川太郎 (監)山下茂男 20.	28.8%	松下電産の兄弟会社で配線器具、パライトなどを製造。 21.
22.	宮田工業 神奈川県茅ヶ崎市 1,320 昭和9年1月30日 800	(社)黒坂正邦 23.	(社)黒坂正邦 (専)宮田朝夫 (常)山口芳久 (常)伊沢新一郎 (取)小林謙司 (取)堀本恭雄 (取)尾崎 靖 (取)堀井英昭 (監)成川菊雄 (監)鈴木 一 (監)宮田輝彦 24.	42.9%	自転車、消火器、消火装置等を製造販売。自転車業界第2位。 25.

Key:

1. Name of Company (Main Office . Capital . Established . Employees)
2. Representative
3. Executives
4. Percentage of Stock Held by Matsushita Electric
5. Principal Business
6. Matsushita Battery Industrial Company
Noriguchi City, Osaka Prefecture
10.5 Billion Yen
16 January 1979
3,000 People
7. Kunitoku Azuma
8. [Names from Left to Right (C) = Chairman, (P) = President,
(VP) = Vice President, (E) = Executive Director, (M) = Managing
Director, (D) = Director, (PI) = Permanent Inspector, (I) = Inspector,
(CS) = Counselor]

(P)Kunitoku Azuma (M)Masao Funabashi (E)Hideo Takenaka
(E)Toyoteru Kurata (D)Toshihiko Yamashita (D)Minoru Yoshinaka
(D)Miyoji Nakai (D)Koji Tukuoka (D)Yukio Hama
(D)Hiromichi Ogawa (PI)Isamu Asano (I)Shohei Yamamoto
(I)Hajime Suzuki
9. Manufacture and marketing of various types of batteries and
equipment using batteries.
10. Matsushita Electric Trading Company
Minami-ku, Osaka
5,412,000,000 Yen
20 August 1935
1,300 People
11. Kyutaro Isomura
12. (C)Shozo Iimura (PI)Kyutaro Isomura (VP)Takasumi Fujii
(M)Hisakazu Sakaguchi (M)Takao Mizutani (E)Hideo Miyake
(E)Yoshio Nakada (E)Shoichi Oazki (E)Hajime Hayashi
(E)Toshimi Toyota (D)Seiji Matsushita (D)Toshihiko Yamashita
(D)Eizo Fujio (D)Masayuki Iwasaki (D)Saburo Maruta
(D)Jun Seki (D)Tomisaburo Tatsumi (D)Takahisa Suzuki
(D)Shoichiro Koyama (D)Toshiyuki Fuse (D)Akihisa Imura
(CS)Kotaro Takahashi (PI)Hirao Nakamura (I)Seiji Hino
(I)Toshizo Funaki
13. Trade. In charge of the Matsushita group Export Division.
14. Matsushita Reiki [Cooling Machinery] Company
Higashi-Osaka City, Osaka Prefecture
7,853,000,000 Yen
12 February 1939
5,100 People
15. Setsuo Aoki

Key [continued]:

16. (C)Toshiharu Nakagawa (P)Setsuo Aoki (E)Norio Fujiwara
(E)Akira Yamamoto (E)Kiyoshi Izumi (D)Konosuke Matsushita
(D)Seiji Matsushita (D)Toshihiko Yamashita (D)Yasuyuki Kitaura
(D)Tsuneaki Ueda (D)Toshio Konya (D)Kimio Hikita
(D)Takeshi Matoba (D)Takaski Takino (PI)Sadayuki Tamura
(I)Seiji Hino (I)Jikei Okamura
17. Name changed from Nakagawa Electric Company. Manufacture and
marketing of refrigerators, air conditioners, vending machines.
18. Matsushita Electric Works
Kadoma City, Osaka Prefecture
23,952,000,000 Yen
26 December 1935
12,600 People
19. Iku Kobayashi
20. (C)Seiji Tanba (P)Iku Kobayashi (VP)Sadao Fujii
(VP)Kihachiro Miyata (M)Jun Matsumoto (M)Toshio Miyoshi
(E)Shichiro Tani (E)Toshiya Arakida (E)Ichiro Endo
(E)Takeo Munemasa (E)Hiroshi Oshima (D)Seiji Matsushita
(D)Minoru Nishio (D)Shoichi Kitamura (D)Koji Mekage
(D)Yasutaro Ohara (D)Yoshikazu Yamada (D)Bunzo Yoshikawa
(D)Yoshimi Shinzen (D)Suchiro Tanno (CS)Konosuke Matsushita
(PI)Toshikatsu Hase (I)Taro Kadokawa (I)Shigeo Yamashita
21. Matsushita Electric sister company; manufacture of wiring apparatus,
parametrons.
22. Miyata Industrial Company
Chigasaki City, Kanagawa Prefecture
1.32 Billion Yen
30 January 1934
800 People
23. Masakuni Kurosaka
24. (P)Masakuni Kurosaka (M)Asao Miyata (E)Yoshihisa Yamaguchi
(E)Shinichiro Izawa (D)Kenji Kobayashi (D)Kyoyu Horimoto
(D)Yasushi Ozaki (D)Hideaki Horii (I)Kikuo Narikawa
(I)Hazime Suzuki (I)Teruhiko Miyata
25. Manufacture and marketing of bicycles, fire extinguishers,
fire extinguishing devices. Ranked second in bicycle industry.

Principal Related Companies of Matsushita Electric No 3

松下電器産業主要関連会社					No.3	
1. 会社名(本社・支店・子会社)	2. 代表者	3. 役員			4. 松下電器の持分比率	5. 主な事業内容
6. 日本ビクター 東京都中央区 10,415(百万円) 昭和2年9月13日 10,200(名)	(社)矢道一郎 7.	(会)松野幸吉 (専)平田雅彦 (専)高野鎮雄 (取)内田文雄 (取)田口市蔵 (取)青池仁士 (監)高橋荒太郎	(社)矢道一郎 (専)井上敏也 (常)渋谷 茂 (取)渡辺三郎 (取)石井正雄 (取)北村俊丸 (常監)徳光博文	(専)渡辺叔夫 (専)垣木邦夫 (常)富田 悟 (取)江淵勝也 (取)丹羽靖一郎 (取)保崎佐一郎 (常監)吉米地功吉	50.1%	ビデオ、ビデオカメラ、テレビ、ラジオ、ステレオ、レコードなどを製造販売音響機器の総合メーカー。 9.
10. 九州松下電器 福岡市博多区 5,966 昭和30年12月24日 4,000	(社)青沼博二 11.	(会)高橋荒太郎 (専)堀 武雄 (常)峯地 寅 (取)山下俊彦 (取)山形展俊 (常監)上辻利定 (監)秦野俊樹	(社)青沼博二 (専)河合昭彦 (常)河野昌孝 (取)平井道雄 (取)藤尾 明 (監)樋野正二 (相)松下幸之助	(副)元森 勇 (専)栗田禮一 (取)松下正治 (取)佐藤 明 (取)森 澄雄 (監)丹羽正治	50.1%	メカトロニクス、アクアニクス、健康機器、事務機器、情報関連機器等を生産。九州一の総合家電メーカー。 13.
14. 松下精工 大阪市城東区 8,591 昭和31年5月15日 2,000	(社)長井重三郎 15.	(会)高橋荒太郎 (専)鈴木桂太郎 (取)松下正治 (取)正木勇二 (取)西原光雄 (常監)音川誠三 (相)松下幸之助	(社)長井重三郎 (専)尾谷博敏 (取)山下俊彦 (取)松吉正也 (取)矢寺 武 (監)中西 博	(副)松田直夫 (常)越中 忠 (取)錦織 享 (取)鈴木昭一 (取)山田吉宏 (監)樋野正二	50.2%	扇風機、換気扇、送風機など、空調・送風関連を担当。 17.
18. 松下電送 東京都目黒区 1,500 昭和20年11月1日 1,400	(社)八尾俊八郎 19. 20.	(会)木野親之 (専)衣川正男 (常)杉浦淳一郎 (常)伊達義昭 (取)白仁 進 (取)小浦秋定 (取)八畝和夫 (取)鋤持敏治 (監)船木重光	(社)八尾俊八郎 (専)大野 勝 (常)佐藤恒夫 (常)松元 守 (取)渡辺孟次 (取)鶴田三雄 (取)田中 穰 (相)大森吉五郎 (監)樋野正二	(副)森 勲 (専)渡辺昭一 (常)山本 昭 (取)殿木圭一 (取)城阪俊吉 (取)仲井光夫 (取)田中正勝 (常監)新富寅男 (相)松下幸之助	60%	ファクシミリの特許トップメーカー。積極的な技術開発を展開。 21.
22. 松下寿電子工業 香川県高松市 7,188 昭和44年11月21日 4,700	(社)稲井隆義 23.	(社)稲井隆義 (常)浦西万蔵 (取)山下俊彦 (取)伊藤達雄 (相)松下幸之助 (監)関根恒雄	(専)仲野省三 (常)樹田研三 (取)山下義喜 (取)前田富男 (常監)服部俊昭 (監)飯田富雄	(常)天野 茂 (取)松下正治 (取)本條 孝 (取)宮川正明 (監)樋野正二	56.9%	ビデオ、ビデオカメラ、カラーテレビ、テープレコーダ、コタツを製造。カラーテレビ・テープレコーダ・コタツが三本柱。 25.

Key:

1. Name of Company (Main Office . Capital . Established . Employees)
2. Representative
3. Executives
4. Percentage of Stock Held by Matsushita Electric
5. Principal Business
6. Victor Company of Japan
Chuo-ku, Tokyo
10,415,000,000 Yen
13 September 1927
10,200 People
7. Ichiro Shindo
8. [Names from Left to Right. (C) = Chairman, (P) = President,
(VP) = Vice President, (E) = Executive Director, (M) = Managing
Director, (D) = Director, (PI) = Permanent Inspector, (I) = Inspector,
(CS) = Counselor]

(C)Kokichi Matsuno (P)Ichiro Shindo (M)Toshio Watanabe
(M)Masahiko Hirata (M)Toshiya Inoue (M)Kunio Kakigi
(M)Shizuo Takano (E)Shigeru Shibuya (E)Satoru Tomita
(D)Fumio Uchida (D)Saburo Watanabe (D)Katsuya Ebuchi
(D)Ichizo Taguchi (D)Masao Ishii (D)Yasuichiro Tanba
(D)Hitoshi Aoike (D)Toshimaru Kitamura (D)Saichiro Hozaki
(I)Kotaro Takakashi (PI)Hirobumi Tokumitsu (PI)Kokichi Tomamaichi
9. Manufacture and marketing of audio and video equipment such
as video cameras, TV's, radios, stereos, recorders. A
comprehensive manufacturer.
10. Matsushita Electric Company of Kyushu
Hakata-ku, Fukuoka City
5,966,000,000 Yen
24 December 1955
4,000 People
11. Hiroji Aonuma
12. (C)Kotaro Takahashi (P)Hiroji Aonuma (VP)Isamu Motomori
(M)Takeo Hori (M)Akihiko Kawai (M)Keiichi Kurita
(E)Tora Kakuchi (E)Masataka Kono (D)Seiji Matsushita
(D)Toshihiko Yamashita (D)Michio Hirai (D)Akira Sato
(D)Nobutoshi Yamagata (D)Akira Fujio (D)Sumio Nori
(PI)Toshisada Kamitsuji (I)Seiji Hino (I)Seiji Tanaba
(I)Toshiki Hatano (CS)Konosuke Matsushita
13. Production of "mechatronics," "aquatics," health equipment,
office equipment, information-related equipment. Number 1
comprehensive home appliance maker in Kyushu.
14. Matsushita Seiko [Precision Manufacturing] Company
Joto-ku, Osaka
8,591,000,000 Yen
15 May 1956
2,000 People
15. Shigesaburo Nagai

Key [continued]:

16. (C)Kotaro Takahashi (P)Shigesaburo Nagai (VP)Tadao Matsuda
(M)Keitaro Suzuki (M)Hirotoshi Otani (E)Tadashi Koshinaka
(D)Seiji Matsushita (D)Toshihiko Yamashita (D)Kyo Nishikiori
(D)Yuji Masaki (D)Masaya Matsuyoshi (D)Shoichi Suzuki
(D)Mitsuo Nishihara (D)Takeshi Yadera (D)Yoshihiro Yamada
(PI)Seizo Otogawa (I)Hiroshi Nakanishi (I)Seiji Hino
(CS)Konosuke Matsushita
17. In charge of air conditioner and fans, ventilation fans, etc.
18. Matsushita Transmission Company
Meguro-ku, Tokyo
1.5 Billion Yen
1 November 1945
1,400 People
19. Toshihachiro Yao
20. (C)Chikayuki Kino (P)Toshihachiro Yao (VP)Isao Mori
(M)Masao Igawa (M)Masaru Ono (M)Shoichi Watanabe
(E)Junichiro Sugiura (E)Tsuneo Sato (E)Akira Yamaoto
(E)Yoshiaki Date (E)Mamoru Matsumoto (D)Keiichi Tonoki
(D)Susumu Shirozane (D)Takeji Watanabe (D)Shunkichi Shirosaka
(D)Akisada Ogama (D)Mitsuo Tsuruta (D)Mitsuo Nakai
(D)Kazuo Yasuki (D)Yutaka Tanaka (D)Masakatsu Tanaka
(d2)Toshiharu Hamochi (CS)Kichigoro Omori (PI)Torao Shintomi
(I)Shigemitsu Funaki (I)Seiji Hino (CS)Konosuke Matsushita
21. Top maker of facsimile transmission equipment. Involved in aggressive technological development.
22. Matsushita Judenshi Kogyo [Lifetime Electronics Industrial] Company
Takamatsu City, Kagawa Prefecture
7,188,000,000 Yen
21 November 1969
4,700 People
23. Takayoshi Inai
24. (P)Takayoshi Inai (M)Shozo Nakano (E)Shigeru Amano
(E)Manzo Uranishi (e)Kenzo Kida (D)Seiji Matsushita
(D)Toshihiko Yamashita (D)Yoshiki Yamashita (D)Takashi Honjo
(D)Tatsuo Ito (D)Tomio Maeda (D)Masaaki Miyagawa
(CS)Konosuke Matsushita (PI)Toshiaki Hattori (I)Seiji Hino
(I)Tsuneo Sekien (I)Tomio Ida
25. Manufacturer of video equipment, video cameras, color TV's, tape recorders, kotatsus $\frac{1}{4}$ portable foot warmers]. Color TV's, tape recorders, and kotatsus are the 3 main products.

Principal Related Companies of Matsushita Electric No 4

松下電器産業主要関連会社					No.4
1.	2. 会社名(本社・資本金・従業員数)	3. 代表者	4. 役員	5. 松下電器との関係比率	6. 主な事業内容
6.	ナショナル住宅産業 大阪府豊中市 2,904(百万円) 昭和38年7月1日 1,600(名)	(社)山下茂男 7.	(会)丹羽正治 (社)山下茂男 (副)西尾 稔 (常)森本昭一郎 (常)西戸 弘 (取)松下幸之助 (取)松下正治 (取)小林 郁 (取)岩井清宣 (取)小林昭夫 (取)平石益藏 (取)西田忠正 (取)辻 昇平 (取)西岡昭彦 (取)和智文雄 (常監)高坂昇 (監)大辻徳雄 (監)植野正二 (監)松木 順 8.	31.8%	家屋・構造物部材の製造販売、建築工事の施工請負。 9.
10.	日本オーチス・エレベータ 東京都港区 2,618 昭和7年1月11日 1,500	(社)久米 稔 11.	(社)久米 稔 (専)森田邦夫 (専)高崎武章 (取)永島惟滋 (取)喜多村幸藏 (取)山浦 清 (取)高浜 裕 (取)最勝寺幸雄 (取)増田卓弘 (取)フランソワ・ジョラン (取)ビル・L・アイシュマン (取)ジョン・R・ロード (取)ジェームス・C・アベグレン (取)松下正治 (取)浅田義雄 (取)岡城一夫 (取)山本 弘 (取)澤本啓一 (取)長島安治 (監)古庄 実 (監)室塚良治 12.	22.5%	エレベータ、エスカレータ等の製造販売。 13.
14.	松下物流倉庫 大阪府守口市 900 昭和52年6月1日 400	(社)松本栄二 15.	(会)関根恒雄 (社)松本栄二 (専)石場路章 (常)宮崎晃一 (取)松下幸之助 (取)松下正治 (取)山下俊彦 (取)山崎 孝 (取)竹田勝美 (取)井樋昭一 (取)嘉久勝司 (取)打田一三 (取)中村泰彦 (取)松岡博良 (取)古波蔵保之 (常監)足立三千雄 (監)鈴木 一 (監)川上武雄 16.	30%	倉庫・運輸業。 17.
18.	松下興産 大阪市北区 3,650 昭和27年12月15日 200	(社)関根恒雄 19.	(会)松下幸之助 (社)関根恒雄 (専)北野筈一郎 (常)川上武雄 (常)矢野 孝 (取)松下正治 (取)山下俊彦 (取)丹羽正治 (取)高橋荒太郎 (取)安川 洋 (取)樋野正二 (取)相原 茂 (取)武立吉明 (取)橋本常一 (取)矢澤正彦 (監)鈴木 一 (監)下野光男 (常監)東忠一 20.	36%	不動産の売買及び賃貸借。 21.
22.	朝日ナショナル照明 大阪府東大阪市 500 昭和26年3月 846	(社)吉岡 修 23.	(会)長谷川忠雄 (社)吉岡 修 (専)竹井 亨 (専)八木利幸 (取)大島 博 (取)清水治祐 (取)山田一夫 (取)逸見充宏 (取)猪野清三 (取)沢田秀太郎 (取)林 誠造 (常監)杉山敏雄 (監)樋野正二 (監)松木 順 24.	21.9%	朝日電器が社名を変更して、朝日ナショナル照明となる。 住宅用・スタンド照明器具、部品の製造販売。 25.

Key:

1. Name of Company (Main Office . Capital . Established . Employees)
2. Representative
3. Executives
4. Percentage of Stock Held by Matsushita Electric
5. Principal Business
6. National Housing Industrial Company
Toyonaka City, Osaka Prefecture
2,904,000,000 Yen
1 July 1963
1,600 People
7. Shigeo Yamashita
8. [Names from Left to Right. (C) = Chairman, (P) = President,
(VP) = Vice President, (E) = Executive Director, (M) = Managing
Director, (D) = Director, (PI) = Permanent Inspector,
(I) = Inspector]

(C)Seiji Tanba (P)Shigeo Yamashita (VP)Minoru Nishio
(E)Shoichiro Morimoto (E)Hiroshi Nishido (D)Konosuke Matsushita
(D)Seiji Matsushita (D)Iku Kobayashi (D)Kiyonobu Iwai
(D)Akio Kobayashi (D)Masuzo Hiraishi (D)Tadamasa Nishida
(D)Shohei Tsuji (D)Akihiko Nishioka (D)Fumio Wachi
(PI)Noboru Kosaka (I)Tokuo Otsuji (I)Seiji Uneo
(I)Jun Matsuki
9. Manufacture and marketing of houses and building materials.
Contracts to build.
10. Otis Elevator Company of Japan
Minato-ku, Tokyo
2,618,000,000 Yen
11 January 1932
1,500 People
11. Minoru Kume
12. (P)Mironu Kume (MI)Kinio Morita (M)Takeaki Takasaki
(D)Tadaji Nagashima (D)Kozo Kitamura (D)Kiyoshi Yamaura
(D)Hiroshi Takahama (D)Yukio Saishoji (D)Suguhiko Masuda
(D)Francois Joran [phonetic] (D)Bill L. Eischman [phonetic]
(D)John R. Road [phonetic] (D)James C. Abeglen [phonetic]
(D)Seiji Matsushita (D)Yoshio Asada (D)Hifuo Okashiro
(D)Hiroshi Yamamoto (D)Keiichi Sawamoto (D)Yasuji Nagashima
(I)Minoru Kosho (I)Kyoji Murotsuka
13. Manufacture and marketing of elevators and escalators.
14. Matsushita Product Distribution Warehouse Company
Moriguchi City, Osaka Prefecture
900 Million Yen
1 June 1977
400 People
15. Eiichi Matsumoto

Key [continued]:

16. (C)Tuneo Sekine (P)Eiji Matsumoto (M)Michiaki Ishiba
(E)Koichi Miyazaki (D)Konosuke Matsushita (D)Seiji Matsushita
(D)Toshihiko Yamashita (D)Takashi Yamazaki (D)Katsumi Takeda
(D)Shoichi Itoi (D)Masashi Yashihisa (D)Kazumi Uchida
(D)Yasuhiko Nakamura (D)Hiroyoshi Matsuoka (D)Yasuyuki Kohagura
(PI)Michio Adachi (I)Hajime Suzuki (I)Takeo Kawakami
17. Warehouse and transport.
18. Matsushita Kosan Company
 Kita-ku, Osaka
 3.65 Billion Yen
 15 December 1952
 200 People
19. Tsuneo Sekine
20. (C)Konosuke Matsushita (P)Tsuneo Sekine (M)Junichiro Kitano
(E)Takeo Kawakami (E)Takashi Yano (D)Seiji Matsushita
(D)Toshihiko Yamashita (D)Seiji Tanba (D)Kotaro Takahashi
(D)Hiroshi Yasukawa (D)Seiji Hino (D)Shigeru Aihara
(D)Yoshiaki Takedate (D)Tsunekazu Hashimoto (D)Masahiko Yazawa
(I)Hajime Suzuki (I)Mitsuo Shimoya (PI)Chuichi Azuma
21. Buying and selling of land, letting and renting.
22. Asahi National Lighting Company
 Higashi-Osaka City, Osaka Prefecture
 500 Million Yen
 March 1951
 846 People
23. Osamu Yoshioka
24. (C)Tadao Hasegawa (P)Osamu Yoshioka (M)Toru Takei
(M)Tochiyuki Yagi (D)Hiroshi Oshima (D)Haruhiro Shimizu
(D)Kazuo Yamada (D)Michihiro Hayami (D)Seizo Ino
(D)Yoshitaro Sawada (D)Seizo Hayashi (PI)Toshio Sugiyama
(I)Seiji Hino (I)Jun Matsuki
25. Name changed from Asahi Electric Company to Asahi National
 Lighting Company. Manufacture and marketing of residential-use
 lighting equipment, floor lamps, parts.

As the company in charge of electronics for industrial and business purposes mainly, a great deal is expected of Matsushita Communications in the areas of information, communications, computing, control, audio, and video.

That is, today's society is becoming increasingly more informationalized and, as the communications company within the Matsushita group, Matsushita Communications will play the central role in the high-level information-oriented society that is close at hand.

Besides car telephones, a market in which Matsushita Communications owns an overwhelming share, the company possesses a line of products with a bright future: floppy disk drives, personal computers, and personal wireless equipment [radiotelephones].

Furthermore, it is making steady progress in developing a system that can accommodate information network systems (INS) and local area networks (LAN).

Matsushita Group's Dash Forward Through Competition And Cooperation

There are other companies besides these in which President Yamashita has the utmost confidence. They are: Matsushita Housing Machinery Company headed by President Morimasa Ogawa; Matsushita Electric Trading Company which handles export matters for the entire Matsushita group and which is the frontline unit in carrying out Matsushita's world strategy; Matsushita Industrial Machinery Company which is in charge of FA-era "industronics" focusing on industrial robots; the Matsushita Battery Industrial Company. Each member of the group sustains Matsushita Electric's continuous dash into the future.

There is also a research and development company called Matsushita Technical Research Center which continues to grow as the brains of the Matsushita group.

As a huge group in this age of electronics, the Matsushita Electric-headed Matsushita group must forge ahead in the above-mentioned way, each member sometimes competing with one another and at other times cooperating with one another. It could be called an unpredictable group.

12517

CSO: 8129/1328

ECONOMIC

BRIEFS

EXPANDING ECONOMY REPORTED--Tokyo, 26 Jun (KYODO)--Japan's official economic indicators on a diffusion index basis in April showed the nation's economy going into an expansionary stage, the Economic Planning Agency said Tuesday. The leading indicator, consisting of 12 indexes, stood at 66.7 percent and the coincident indicator, of 11 indexes, at 77.3 percent, staying above the boom-or-bust line of 50 percent for the 14th month in a row in April, EPA said. The lagging indicator, made up of seven indexes, was at 85.7 percent, staying above the 50 percent line for the fifth consecutive month. [Text] [OW260853 Tokyo KYODO in English 0844 GMT 26 Jun 84]

SPENDING CUTBACK CALL REJECTED--Tokyo, 22 Jun (KYODO)--A ruling Liberal-Democratic Party executive Friday flatly turned down a concerted call by business leaders for a blanket spending cutback in compiling the state budget for fiscal 1985. LDP sources said. Yoshihiro Inayama, chairman of the Federation of Economic Organizations (Keidanren), and leaders of four other business organizations met Masayuki Fujio, chairman of the LDP Policy Affairs Research Council, and urged the government to stick to the so-called "minus ceiling" formula in assessing spending requests by various ministries and agencies. But Fujio brushed aside the call as bureaucratic and unrealistic, party sources said. The call came amid the growing demand in the LDP that the Finance Ministry discontinue the minus ceiling system, adopted since three years ago in the face of tight state finances, and switch to a reflationary budget. Fujio suggested to the businessmen that the party is now inclined to drop the retrenchment policy and instead earmark greater appropriations for selected priority programs, the LDP sources said. The sources said Fujio also rejected as not practical Inayama's proposals for keeping the producers' rice price unchanged for another year and for minimizing annual pay increases for public servants. [Text] [OW221019 Tokyo KYODO in English 0931 GMT 22 Jun 84]

PLANS FOR NEW INVESTMENTS MINISTER--Tokyo, 27 Jun (KYODO)--Prime Minister Yasuhiro Nakasone said Wednesday the government plans to use private-sector investments as a means for boosting domestic demand. Nakasone, in an address to the Japan Newspaper Publishers and Editors Association, said the government "has no money" for public works because of budgetary deficit. To expand domestic demand, the government plans to pool private-sector resources for urban development with the use of public lands, he said. The prime minister's remarks appeared to reject growing pressure within the ruling Liberal-Democratic Party to increase public spending in the 1985 fiscal year. Nakasone also said he plans to appoint Ichiro Nakaishi as minister in charge of promoting private sector investments. Nakaishi, currently director general of general affairs in the prime minister's office, is tipped to become a new minister without portfolio in a cabinet reshuffle resulting from the merger of the General Affairs Department with the Administrative Management Agency. [Text] [OW270755 Tokyo KYODO in English 0740 GMT 27 Jun 84]

CSO: 4100/164

END